



Los Angeles County Climate Action Plan
March 2020 Public Review Draft

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Executive Summary

The County of Los Angeles (County) acknowledges the well-established consensus that human activity, especially the combustion of fossil fuels since the beginning of industrialization, is the primary cause of the climate crisis. Now, more than ever, climate change has become a real and significant threat with impacts being felt today here in the County and across the globe. Climate change has already inflicted harm to Los Angeles County residents and has the strong potential to negatively impact future generations' safety, public health, economy, and quality of life. On September 4, 2018, the County Board of Supervisors adopted a motion supporting the 2016 Paris Climate Agreement (Paris Agreement) and added the County to the We Are Still In Coalition. By this action, the County is committed to adapting the County's programs and services to reduce the County's greenhouse gas (GHG) emissions and help limit global temperature increases.

The Los Angeles County Climate Action Plan (referred to as "CAP") is the County's path towards meeting the Paris Agreement goals and achieving carbon neutrality for unincorporated areas of the County. The CAP builds on previous climate action work from the Community Climate Action Plan 2020 (2020 CCAP), adopted in October 2015 as a subcomponent of the Air Quality Element of the Los Angeles County General Plan 2035 (General Plan). The CAP identifies strategies and actions to mitigate emissions from community activities, which may include some municipal operations, however municipal operations are not the focus of this plan.

Since the adoption of the 2020 CCAP, local, state, and international leaders have established new targets for carbon reductions that seek deep and long-term transformations in emissions generating sectors. In 2016, global leaders signed the Paris Agreement, a plan to limit the global average temperature increase to

1.5 degrees Celsius above pre-industrial levels. In 2016, California Governor Jerry Brown signed Senate Bill (SB) 32 which established a 2030 target to reduce GHG emissions by 40 percent below 1990 levels. In 2018, he issued executive order (EO) B-55-18, which established a new statewide goal to reach carbon neutrality by 2045 and achieve and maintain net negative emissions thereafter.

The CAP is an update to the 2020 CCAP and sets new reduction targets beyond the 2020 timeframe that are consistent with State goals. The CAP includes:

- A GHG emissions inventory from community-wide activities in unincorporated Los Angeles County in 2015;
- Projections of future emissions;
- A target for carbon neutrality by 2045, with interim targets for 2025 and 2035;
- Climate strategies and actions to reduce GHG emissions from major sectors; and
- Implementation and monitoring measures to ensure successful climate action.

The CAP aligns with the OurCounty Sustainability Plan adopted by the Board of Supervisors in August 2019. The OurCounty Sustainability Plan is a countywide vision for making communities healthier, more equitable, economically stronger, and more resilient. The CAP builds upon this overarching sustainability vision. The CAP describes strategies and actions to promote climate leadership and reduce GHG emissions from buildings, energy industries, transportation, landfills, natural and working lands, and other sources. The Los Angeles County Department of Regional Planning (DRP) and Chief Sustainability Office led the planning efforts for the CAP in collaboration with County departments and

stakeholders. Successful implementation will require participation from all stakeholders to ensure a healthy and sustainable future.

Greenhouse Gas Emissions in the Unincorporated County

Estimated GHG emissions generated by community activities in the unincorporated areas in 2015 were approximately 9.6 Million metric tons of carbon dioxide equivalent (MTCO₂e). Of these total emissions, the transportation sector is the largest source of emissions (62 percent), which is mostly comprised of on-road vehicles. The stationary energy sector is the second largest source of GHG emissions in the unincorporated county areas (30 percent), which is mainly driven by energy generation facilities like auxiliary power plants,

landfill-to-gas, district energy systems (12 percent), and electricity and natural gas use in residential buildings (10 percent). Together, these two sectors constitute approximately 92 percent of all community-scale GHG emissions in the County. The remaining sources are waste and wastewater generation (5 percent), product use (3 percent), and the agriculture, forestry and other land use (AFOLU) sector. Figure 1 shows a breakdown of 2015 community-wide GHG emissions (9.6 Million MTCO₂e) for unincorporated Los Angeles County by sector.

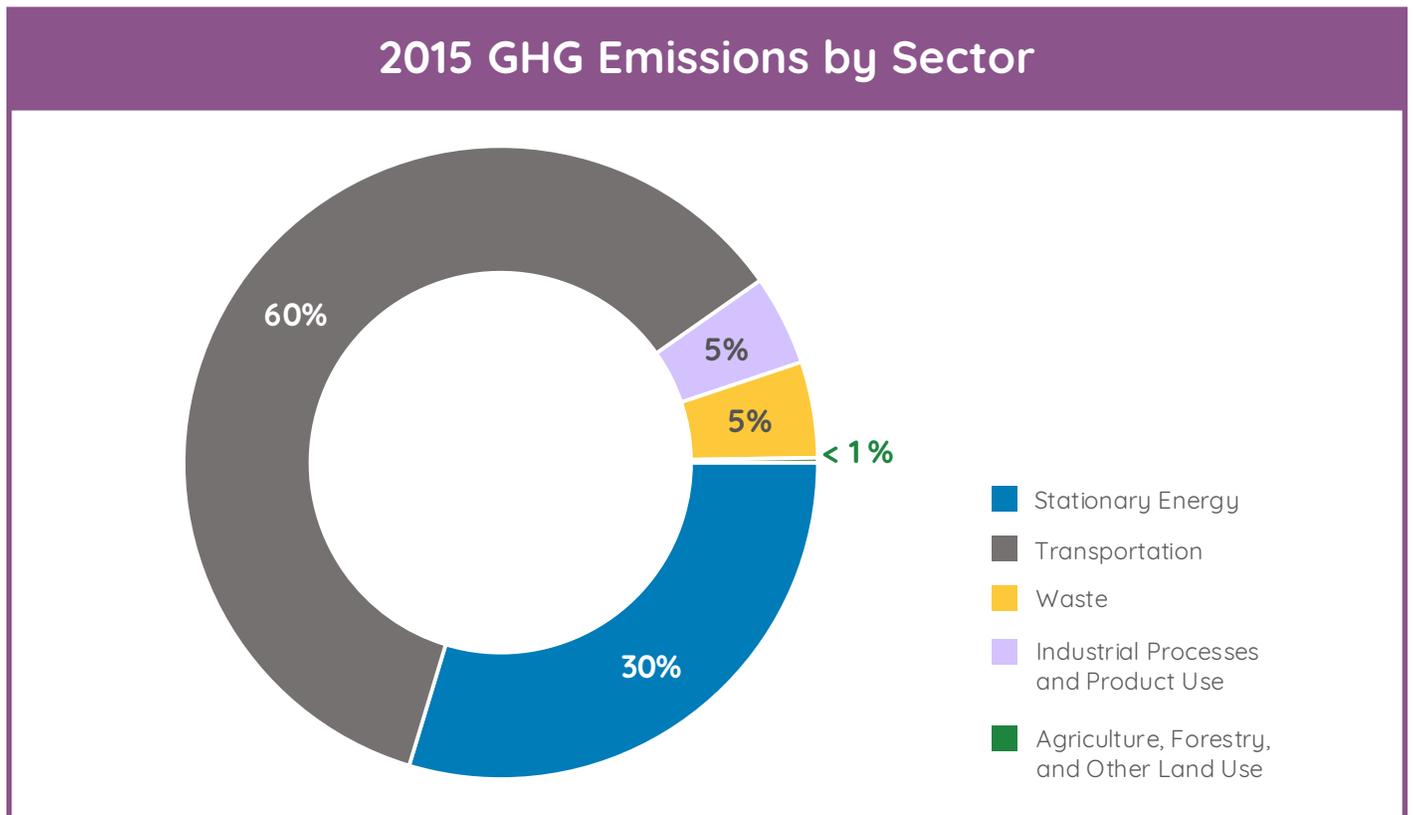


Figure 1: 2015 GHG Emissions Inventory for Unincorporated Los Angeles by Sector

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Co-benefits of Climate Action

More and more communities are acknowledging the social, economic, and environmental benefits of climate action and reducing GHG emissions. By taking climate action, the County can simultaneously clean the air, protect biodiversity, create new jobs opportunities, increase walkability and better health outcomes. In the creation of the CAP strategies and actions, the County also assessed co-benefits derived from each individual action. The co-benefits identified for the climate actions align with the five Guiding Principles of the General Plan, which are smart growth, community services, strong and diverse economy, natural resource management, and healthy, livable, and equitable communities. More details regarding the questions used to determine the co-benefits of reducing GHG emissions can be found in Appendix C. The co-benefits and respective sub-categories are:

- **Smart Growth**
- **Community Services**
- **Strong and Diverse Economy**
- **Natural Resources Management**
- **Healthy, Livable, and Equitable Communities**

CAP Strategies to Reduce Greenhouse Gas Emissions

The County has demonstrated its commitment to climate leadership and action over the years. Since adopting the 2020 CCAP the County has developed ordinances, updated zoning and building codes, and created new programs and initiatives such as the Clean Power Alliance(CPA) to support climate action implementation. The CAP builds upon the County's previous efforts and aims to achieve carbon neutrality by 2045. Achieving carbon neutrality will require ambitious climate actions that address GHG emissions from all sectors and sources. To reduce emissions across all sectors, the CAP establishes three GHG emissions reduction targets:

- by 2025, reduce GHG emissions by 25 percent below 2015 levels;
- by 2035, reduce GHG emissions by 50 percent below 2015 levels; and
- by 2045, achieve carbon neutrality in unincorporated Los Angeles County.

The CAP includes 17 strategies that, when combined, put the unincorporated County on the path toward carbon neutrality and are estimated to cumulatively reduce emissions by 108 Million MTCO₂e between 2015 and 2045. The first strategy focuses on climate leadership and leading by example, recognizing the important role that the County has as a convener and leader in the region. Reaching this goal requires regional collaboration and partnership with various stakeholders, including community, local government, and the State. The County will continue to foster these partnerships to move towards a low-carbon future.

Key Accomplishments from 2020 CCAP

- 2015: 2020 CCAP adopted
- 2016: EV Infrastructure Ordinance adopted
- 2016: Renewable Energy Ordinance adopted
- 2016: Tree Planting Ordinance adopted
- 2017: Clean Power Alliance established
- 2018: We are Still In Declaration by the Board of Supervisors
- 2018: \$10.2 Million grant funding secured for affordable housing near transit, bikeways, and pedestrian and transit improvements from the Affordable Housing and Sustainable Communities Program
- 2019: Cool Roof Ordinance adopted
- 2019: OurCounty Sustainability Plan adopted
- 2019: Pedestrian Plans adopted for four unincorporated area communities of Lake Los Angeles, Walnut Park, Westmont/West Athens, and Whittier-Los-Nietos
- 2019: Transit Oriented District Plans adopted for two unincorporated area communities: Willowbrook and West Carson
- 2019: Significant Ecological Areas (SEAs) Program updated with revisions to the SEA Ordinance and expansion of mapped SEAs
- 2019: New EV Ready code adopted



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Transportation

The transportation sector makes up the majority (62 percent) of community-wide GHG emissions. Transportation strategies emphasize and promote alternatives to single occupancy trips, including public transit, active transportation—such as biking and walking—and land use planning that better connects housing to jobs and services. The success of the transportation strategies will rely on the availability of low-carbon electricity as a fuel source, such as expanded electric vehicle (EV) infrastructure and the adoption of zero-emission technologies.

Transportation Mitigation Strategies

- Promote transit oriented communities
- Reduce single occupancy vehicle trips
- Institutionalize low-carbon transportation
- Accelerate freight decarbonization
- Explore zero emission technologies for off-road vehicles



Stationary Energy

Buildings are a major source of emissions due to heating, cooling, and power needs. Efforts to decarbonize building energy use will require a mix of energy efficiency programs and a shift to electric alternatives for natural gas appliances. The County's participation in the Clean Power Alliance, and commitment to sourcing 100 percent renewable energy for its electricity supply by 2025, will enable this shift and ensure a low-carbon energy future.

Energy Mitigation Strategies

- Decarbonize building energy use
- Promote water conservation
- Increase energy resilience
- Increase renewable energy

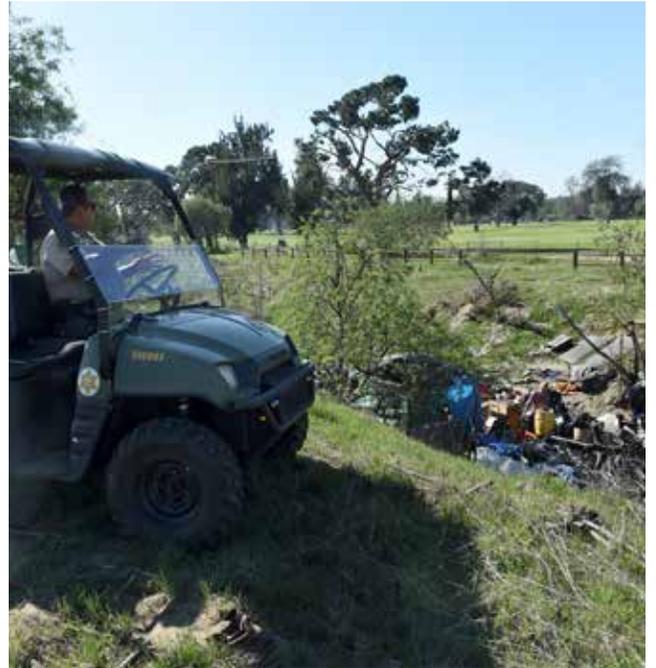


Waste

The County is committed to a sustainable waste future. Creating this future will require programs that both support stakeholder engagement and education as well as develop the necessary infrastructure to support zero waste goals. Strategies in this CAP expand efforts to reduce and reuse waste at the source and to divert waste from the landfills through participation in recycling programs and by converting organic waste, which is responsible for the majority of the waste sector emissions, to compost and fertilizers.

Waste Mitigation Strategies

- Introduce incentive-based systems to reduce waste
- Generate widespread support for sustainable waste future
- Reduce and divert organic waste



Industrial Processes and Product Use

The Industrial Processes and Product Use (IPPU) sector strategies promote and support clean manufacturing processes and incentives to reduce the use of products that have high global warming potential. State prohibitions on the manufacturing and use of certain fluorinated products, such as refrigerants and foam, will result in significant GHG emission reductions. The County can accelerate the transition by encouraging innovation and awareness about environment-friendly industries processes and products.

IPPU Mitigation Strategies

- Promote clean manufacturing processes
- Substitute emission intensive products



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Agriculture, Forestry and Other Land Use

The Agriculture, Forestry and Other Land Use (AFOLU) sector strategies focus on conservation and restoration of existing forest lands and urban forests to sequester carbon and support local ecosystems. These strategies promote clean water, air, and food, in addition to a reduced urban heat island effect. Preserving and supporting the unincorporated County’s forests, parks, and working lands is essential for reducing climate change impacts, as well as protecting the communities, economies, and ecosystems that depend on the land.

AFOLU Mitigation Strategies

- Conserve forests and working lands
- Promote regenerative agricultural practices



The Path to Carbon Neutrality

The CAP sets forward a path to achieve carbon neutrality by reducing emissions from each sector. By implementing the CAP Strategies, the County can mitigate 108 Million MTCO₂e between 2015 and 2045. As shown in Figure 2, the largest decline in emissions will be realized from changes to the transportation and stationary energy sectors. Emissions from certain categories, however, cannot be addressed due to existing technology limitations. These remaining emissions, also known as residual emissions, are from sources such as fossil fuel powered heavy duty trucks, manufacturing facilities, landfills, fluorinated products, and fertilizer use. The County expects that new technologies

developed over the next 25 years would further reduce residual emissions. The County will continually monitor the state of technology and will update the CAP every five years to include new policies and programs that takes advantage of these technological advancements.

If residual emissions cannot be eliminated through new technologies, or be reduced over time in response to changes in community-wide activities, the County will consider the purchase of certified carbon credits (or offsets) to achieve carbon neutrality by 2045.

Cumulative Emission Reduction

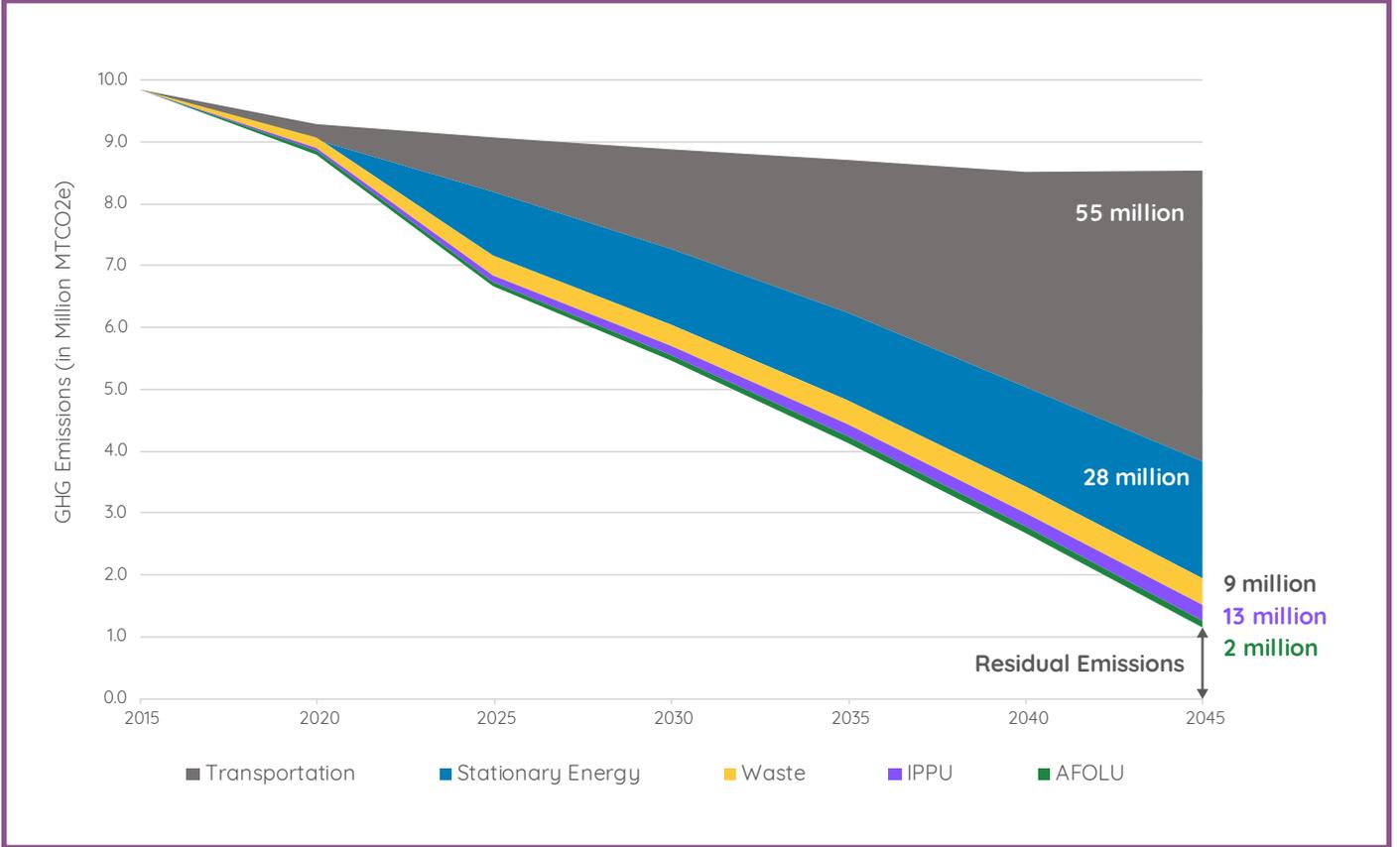


Figure 2: Cumulative emission reduction from 2015 to 2045

1. Introduction

1.1 Purpose and Scope

There is well-established scientific consensus that human activities are responsible for the increase in heat trapping GHGs in the atmosphere, causing average global temperatures to rise over time. This rise in temperature is changing global climate patterns and increasing the likelihood of weather-related natural disasters, the effects of which are disproportionately felt by the most vulnerable communities, both in the County and worldwide. Climate change has the potential to harm this current and future generations' safety, public health, economy, and quality of life.

To address climate change and safeguard local communities, the State of California adopted Assembly Bill (AB) 32 in 2006, also known as the Global Warming Solutions Act, establishing a State-wide goal to achieve 1990 emission levels by 2020. In turn, local governments throughout the State started to develop climate action plans (CAP) to reduce emissions and support State goals. In 2015, unincorporated Los Angeles County adopted the 2020 CCAP as a component of the Los Angeles County General Plan 2035 (General Plan) and set a target to reduce emissions by 11 percent by 2020.

In recent years, globally and locally, leaders are establishing new goals that look beyond 2020 and achieve deeper reductions in carbon emissions. In December 2015, world leaders adopted the Paris Agreement, a global action plan to avoid catastrophic impacts of climate change, formalizing their concerted efforts to limit the global average temperature increase to 1.5 degrees Celsius above pre-industrial levels. The agreement urged national leaders to join forces with states and local governments to commit to net-zero carbon emissions by 2050. In support of the Paris Agreement, the Los Angeles County Board

of Supervisors signed the We Are Still In Declaration in September 2018, affirming the County's continued commitment to uphold the target set by the Paris Agreement. In November 2019, former Governor Jerry Brown's EO B-55-18 set a new goal to bring California to carbon neutrality by 2045, five years before the Paris Agreement deadline.

The CAP builds upon these existing and ongoing efforts and focuses on actions to reduce GHG emissions associated with community activities in unincorporated areas of the County (Figure 3). The CAP, which replaces the 2020 CCAP and sets new targets beyond 2020, ties together existing climate change initiatives and provides a blueprint for deep carbon reductions. Through this updated CAP, the County is targeting carbon neutrality by 2045 in the County, staying aligned with the We Are Still In declaration and State carbon reduction targets and goals.

The CAP includes a GHG inventory; projections for future emissions; and a roadmap for addressing emissions from transportation, stationary energy (used by buildings and other facilities), waste, industrial, agricultural, and land use sectors. Mitigation measures identified in the plan will also yield community co-benefits, such as improvements in air quality, public health, mobility, and resilience. The CAP also outlines a process for implementation and monitoring that integrates with these ongoing sustainability efforts in the County.

1.2 How to Use the CAP

The CAP is a resource for the unincorporated areas of Los Angeles County. Residents, businesses and their employees, community groups, and the public at large are encouraged to participate in community engagement activities as the County implements CAP actions. Public agencies and private developers can also use the CAP to comply with project-level review requirements pursuant to the California Environmental Quality Act (CEQA). CEQA guidelines specify that CEQA project evaluation of GHG emissions can “tier off” a programmatic analysis of GHG emissions, provided that the programmatic analysis or CAP does the following (CEQA Guidelines Section 15183.5):

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- Establish a mechanism to monitor the plan’s progress toward achieving the target and to require amendment if the plan is not achieving specified levels; and
- Be adopted in a public process following environmental review.

The CAP meets the requirements of CEQA Guidelines Section 15183.5 listed above by: 1) quantifying all primary sectors of GHG emissions with the unincorporated area for 2015 through 2045; 2) including GHG reduction targets; 3) analyzing community emissions for the unincorporated areas as a whole and including predicted growth expected by 2045; 4) including specific measures to achieve the overall reduction target; 5) including monitoring of plan progress; and 6) submitting the CAP to be adopted in a public process following compliance with CEQA.

With the adopted CAP, project-specific environmental documents that incorporate applicable CAP actions can “tier off” the environmental document adopted for the CAP to meet project-level CEQA evaluation requirements for GHG emissions. Project-specific environmental documents that incorporate applicable CAP actions, are consistent with the General Plan (development density established by existing zoning, community plan, or General Plan policies), and are consistent with CEQA, can rely on the CAP for quantitative analysis and a separate quantitative analysis will not need to be conducted. A qualitative analysis will still be required to demonstrate compliance with the CAP.

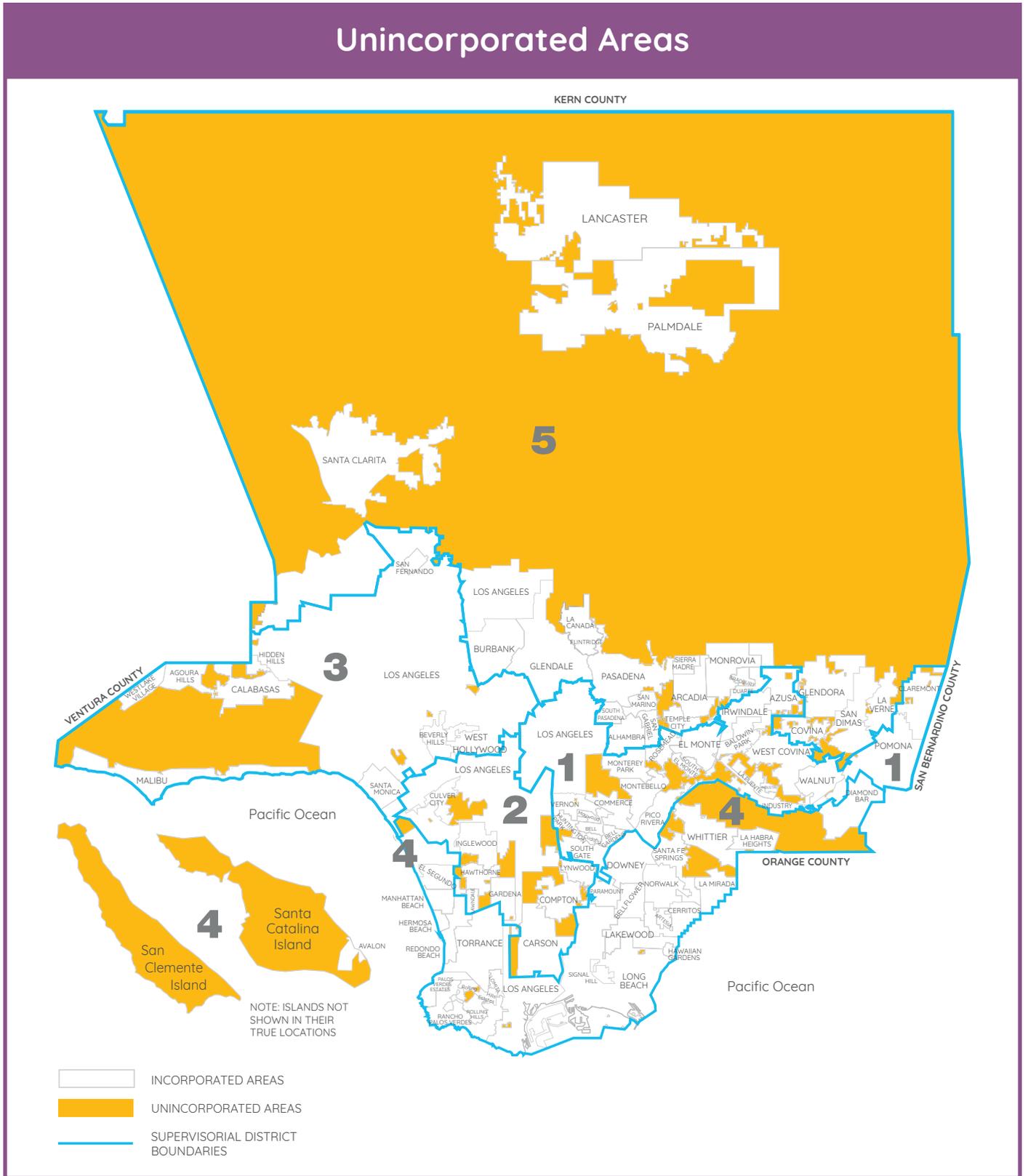


Figure 3 : Map of unincorporated Los Angeles County

1.3 Existing Legislation and Plans

1.3.1 Federal and State Legislation

Federal and State laws can enable local action, achieve broad-based emissions reductions, shift local governments' emissions reduction targets, and change the effectiveness of local reduction measures. As such, the CAP considers relevant federal and State laws and recognizes that future regulations may warrant revisiting CAP measures, as shown in Table 1.

According to the U.S. EPA, transportation emissions have accounted for the largest portion of U.S. GHG emissions in recent years. Federal climate change legislation has therefore primarily focused on curbing emissions from the transportation sector by regulating fuel consumption standards for light-duty vehicles, medium- and heavy-duty trucks and engines. These fuel efficiency standards are defined for new vehicle model years and are regulated under the CAA and the CAFE program.

California has adopted numerous laws and programs over the past 30 years to address climate change, as summarized in Table 2. In 2006, California adopted the Global Warming Solutions Act (AB 32) to address emissions from all sources throughout the State. AB 32 authorized the California Air Resources Board (CARB) to implement a comprehensive program to achieve the State's targets of reducing GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. By 2016, California had already met the AB 32 target set for 2020. In the same year, Governor Jerry Brown signed SB 32 which codified into statute a new 2030 target to reduce GHG emissions by 40 percent below 1990 levels, as established by his 2015 EO B-30-15. In 2018, Governor Brown issued EO B-55-18, establishing a new statewide goal to reach carbon neutrality by 2045, and maintain net negative emissions thereafter.

Table 1: Relevant Federal Legislation

Legislation/Regulation	Year	Description
Clean Air Act (CAA)	1970	Established comprehensive framework for reducing harmful air pollution.
CAFE Standards	1975	Established fuel efficiency standards for medium- and heavy-duty vehicles.
40 CFR Part 89	1994	Established emissions standards for off-road compression-ignition engines.
Massachusetts vs Environmental Protection Agency (EPA)	2007	U.S. Supreme Court ruled that carbon dioxide (CO ₂) is an air pollutant under CAA and authorized the U.S. EPA to regulate emissions of GHG.
Phase 2 Heavy-Duty National Program*	2016	Established emissions standards for heavy-duty trucks through model year 2027.

Notes:

* Portions of Phase 2 were rolled back in July 2018.

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Table 2: Relevant State Legislation

Legislation/Regulation ⁺	Year	Description
AB 1493 Clean Car Standards	2002	Established emissions reduction requirements for new passenger vehicles from 2009 to 2016.
SB 1078	2002	Required that 20 percent of electricity retail sales must be served by renewable resources by 2017.
EO S-3-05	2005	Established the State's first GHG emissions reduction targets: reduction to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.
AB 32 Global Warming Solutions Act	2006	Codified EO S-3-05 and authorized CARB to implement a comprehensive, multi-year program to reduce GHG emissions from all sources throughout the State.
EO S-01-07	2007	Established the State's Low Carbon Fuel Standard and a reduction target of at least 10 percent of the carbon intensity of California's transportation fuels by 2020.
SB 375	2008	Directed CARB to set regional targets for GHG emissions reduction from passenger vehicles.
AB 32 Scoping Plan	2008	Described the long-term roadmap for achieving the AB 32 target of reducing emissions to 1990 levels by 2020.
AB 1493 Amendments	2009	Cemented the State's enforcement of the legislation starting in 2009 while providing vehicle manufacturers with new compliance flexibility.
California Green Building Standards Code or CALGreen (Title 24, Part 11)	2011	The nation's first mandatory green building standards code took effect.
AB 341	2011	Required each city, county, and regional agency to develop a source reduction and recycling element of an integrated waste management plan containing specified components, including a source reduction component, a recycling component, and a composting component. With certain exceptions, the source reduction and recycling element of that plan is required to divert 75 percent of all solid waste from landfill disposal or transformation by 2020, through source reduction, recycling, and composting activities.
Advanced Clean Cars Program	2012	Combined the control of smog-causing pollutants and GHG emissions into a single coordinated package of regulations to guide the development of environmentally advanced cars.
AB 1826	2014	Required a business, which is defined as a commercial or public entity, that generates more than 4 cubic yards of commercial solid waste per week or is a multifamily residential dwelling of 5 units or more, to arrange for recycling services.

Legislation/Regulation*	Year	Description
EO B-30-15	2015	Established a GHG emissions reduction target of 40 percent below 1990 levels by 2030.
SB 350	2015	Accelerated implementation of SB 1078 and mandated a 50 percent Renewable Portfolio Standards (RPS) by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65 percent of RPS procurement to be derived from long-term contracts of 10 or more years.
SB 32 California Global Warming Solutions Act of 2006: emissions limit	2016	Codified EO B-30-15.
SB 1383	2016	Established reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants including methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030.
Advanced Clean Cars Update	2017	Affirmed that adopted GHG standards remain appropriate for 2022 through 2025 model years.
2017 Scoping Plan Update	2017	Described the long-term roadmap for achieving the SB 32 target of reducing emissions by 40 percent below 1990 levels by 2030.
SB 100 California Renewables Portfolio Standard Program	2018	Established goal of supplying 100 percent of the State's electricity from clean sources by 2045.
EO B-55-18	2018	Established target of achieving carbon neutrality (net zero GHG emissions) by 2045.

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1.3.2 Prior County Efforts on Climate Change and Relationship to Other County Plans

1.3.2.1 General Plan

The Los Angeles County General Plan provides the policy framework and long-range vision for growth in unincorporated areas through the year 2035. It establishes goals, policies, and programs to foster healthy, livable, and sustainable communities and provides a guide for future land use, housing, and economic development. The General Plan includes a Planning Areas Framework, which serves as a mechanism for local communities to work with the County to develop plans that respond to their unique and diverse characters.

Under CEQA, lead agencies may choose to analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in a general plan, instead of on a project-by-project basis. The County Board of Supervisors adopted the 2020 CCAP (see section 1.3.2.2) as part of the General Plan in 2015, given that the General Plan is the foundational document for all community-based plans in the unincorporated areas.

The 2020 CCAP set a GHG reduction target to reduce emissions by 11 percent from the 2010 baseline, in line with State efforts at the time. The CAP builds upon the 2020 CCAP by including new reduction targets that address both the GHG emissions from the General Plan build-out and the projected reductions needed to reach carbon neutrality by 2045, in accordance with the State's most recent efforts. The CAP also integrates the guiding principles from the General Plan to identify tailored climate action opportunities for each planning area and to examine potential co-benefits (see Appendix C and D). These guiding principles include the objectives to:

- Employ smart growth;
- Ensure community services and infrastructure are sufficient to accommodate growth;
- Provide the foundation for a strong and diverse economy;
- Promote excellence in environmental resource management; and
- Provide healthy, livable and equitable communities.

1.3.2.2 Los Angeles County Community Climate Action Plan 2020

The County adopted the 2020 CCAP as a component of the Air Quality Element of the General Plan in 2015. The 2020 CCAP aligned with General Plan goals, policies, and programs, as well as several other existing programs in the County. It identified emissions related to community activities, established a 2020 GHG reduction target consistent with AB 32, and established 26 local actions for GHG reduction. The 2020 CCAP was the first attempt to set GHG reduction goals in the County, and although the targets for the 2020 CCAP were ultimately not fully met, the plan, provided a roadmap for implementing County GHG reduction measures. The 2020 CCAP addressed emissions from land use, transportation, building energy, water consumption, and waste generation.

The actions outlined in the 2020 CCAP, along with additional climate related efforts reflect the County's existing commitment to reducing GHG emissions. The 2020 CCAP actions were implemented through ordinance amendments to Title 22 of the County Code (Planning and Zoning) and collaborations with other County Departments. The CAP builds on previous work and looks to define new reduction targets beyond the year 2020. The County's accomplishments and ongoing initiatives (as of 2019) are discussed in the next section.

LUT-1: Bicycle Programs and Supporting Facilities (Ongoing)

Since the approval of the Bicycle Master Plan in 2012, the County has applied for and received grants to implement the Plan's proposed bikeway network. In 2018, the County was awarded a total of \$10,164,054 in grant funding for bikeways, pedestrian improvements (high visibility crosswalks and wayfinding signage), and transit improvements (bus stop amenities) from the Affordable Housing and Sustainable Communities Program for projects in the unincorporated communities of Willowbrook, East Los Angeles, and Florence-Firestone.

LUT-2: Pedestrian Network (Ongoing)

As part of County Public Works' (PW) road construction program, 19,816 linear feet of new and reconstructed sidewalks were completed in the 2019 calendar year. PW's Road Maintenance Division reconstructed approximately 65,300 linear feet of sidewalk (Force Account and Contracts). In 2019, the County also adopted Step by Step Los Angeles County, a sub-element to the General Plan Mobility Element that included countywide pedestrian policies, programs, and procedures, as well as Community Pedestrian Plans for the four unincorporated communities of Lake Los Angeles, Walnut Park, Westmont/West Athens, and West Whittier-Los Nietos.

LUT-3: Transit Expansion (Ongoing)

Through the 2020 CCAP, the County has committed to working with Metro on a transit program that prioritizes public transit by creating bus priority lanes, improving transit facilities, reducing transit-passenger time, and providing bicycle parking near transit stations. Future efforts will include exploring programs to offer discounted transit passes, constructing infrastructure to increase bicyclist and pedestrian access to transit stations, and implementing "first mile-last mile" strategies.

LUT-6 Land Use Design and Density (Ongoing)

As of 2019, the County has adopted Transit Oriented District (TOD) Plans for two unincorporated area communities: Willowbrook and West Carson, under the TOD Program. The County is awaiting final approval for a third TOD in West Athens-Westmont, under the TOD Program. In 2019, DRP also launched a fourth TOD in Florence-Firestone.

LUT-7 Transportation Signal Synchronization Program (Ongoing)

The Board instituted the Countywide Traffic Signal Synchronization Program (TSSP) in 1988. This ongoing program includes upgrading traffic signal infrastructure and timing to allow for signal synchronization, implementation of pedestrian and bicycle improvements, and improving transit operations through more consistent travel times. TSSP projects completed between 2011 and 2019 generated annual savings of an estimated 6.1 Million gallons of gasoline and 320,000 gallons of diesel fuel. In addition, these projects are also preventing over 906 tons of pollutants from being released into the atmosphere due to reduced travel times and less stopping at red lights. There are an additional nine TSSP projects about to begin or under construction as of November 2019.

LUT-8: Electric Vehicle Infrastructure

Under EO B-48-18 and EO B-55-18, the state has set ambitious targets for EV infrastructure and EV deployment. Statewide goals include achieving five Million ZEVs registered in the state by 2030 and 250,000 EV Supply Equipment (EVSE) by 2025 to support the growth of EVs. The County currently has deployed approximately 350 EV charging ports across County facilities to support the electrification of the County fleet and to increase EVSE access to employees and the public. County Internal Services Department (ISD) received a grant from the California Energy Commission

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(CEC) to support a regional EV infrastructure planning effort as a follow up on a report on EV chargeback for County facilities and an EV Needs Assessment.

The EV Infrastructure Ordinance was adopted on September 6, 2016. This ordinance amended the zoning and building codes to provide an expedited and streamlined permitting process, and to develop an application and procedural framework for EV charging infrastructure, as mandated under AB 1236 (2015). In addition, as part of the 2020 CCAP Implementation Ordinance, DRP amended Title 22 to ensure compatibility with EV infrastructure. The 2020 CCAP Implementation Ordinance was adopted on June 6, 2018.

LUT-9: Idling Reduction Goal

The Idling Reduction Ordinance amended the zoning code to require signs in onsite loading areas to encourage vehicle idle reduction. This ordinance was adopted on June 6, 2018.

LUT-11: Sustainable Pavements Program (Ongoing)

In 2008, PW began the implementation of a three-pronged sustainable pavement treatment approach to maintain roads by incorporating principles that 1) take care of roads that are in good condition; 2) use recycled materials in the treatment selections; and 3) reutilize existing materials in-place to rehabilitate or reconstruct the road. The environmental footprint and cost of repairing roads using this new approach is much lower than traditional hot mix approaches. Through this program, PW achieved 80 percent reduction in energy usage (112 Million kWh), 84 percent reduction in GHG emissions (32,700 MTCO_{2e}) and has saved approximately \$56.8 Million.

In addition, DRP amended the zoning code to allow the use of “cool pavement.” This ordinance was adopted on June 6, 2018. In November 2019, PW completed the construction of the “cool pavement” pilot project and partnered with a local research educational institution who will collect data on the performance of the “cool pavement” materials. PW will continue to monitor the performance of the “cool pavement” materials and the temperature impacts to the surrounding community.

BE-1: Green Building Development

On November 26, 2019, the Board formally adopted the 2020 County of Los Angeles Green Building Standards Code for the new code cycle, which came into effect on January 1, 2020. This incorporates the changes from the 2019 CALGreen building code, as well as local County amendments.

PW has also adopted a Cool Roof Ordinance to amend Title 31 to mandate the installation of Tier 2 level cool roofing materials for all projects in which it has been proven to be cost effective. The ordinance was approved by the Board of Supervisors on October 16, 2018, approved at the California Energy Commission’s review process on March 12, 2019, and went into effect on May 7, 2019. In addition, as part of the 2020 CCAP Implementation Ordinance, DRP amended the zoning code to allow the use of “cool roof materials.”

BE-2: Energy Efficiency Programs (Ongoing)

The County’s Internal Services Department (ISD) manages the Southern California Regional Energy Network (SoCalREN), which supports energy efficiency programs in the region in partnership with other local governments and residential and multi-family property owners. Since 2012, ISD has secured approximately \$120 Million in aggregate funding from the California Public Utilities Commission on an annual basis and was approved for \$173.5 Million in additional funding over

the next 8 years in May 2018, based on the progress of the program. As of December 31, 2017, the program has served 1,857 single family homes, 7,330 multi-family units, and supported whole building retrofits at public agencies in the region, resulting in over 42.5 Million kWh electricity savings, and 80,417 therms of natural gas savings.

In 2014, ISD and the Los Angeles County Treasurer and Tax Collector created the Los Angeles County Residential PACE Program, a financing option sponsored by the County for homeowners who want to install energy efficiency, renewable energy, water-saving, and now seismic improvements to their properties.

As of June 30, 2018, 33,646 projects with an aggregate value of \$849,318,116 have been completed under the Residential PACE Program. PACE financing has enhanced home values, lowered homeowners' energy and water bills, reduced GHG emissions, and created green jobs, stimulating the economy. These projects are estimated to have saved 3.5 Billion kWh in energy, 3.8 Billion gallons of water, and reduced emissions in the region by 1.1 Million MTCO_{2e}. In addition to the environmental benefits, an estimated 9,541 jobs have been created or sustained under this program. The Residential PACE Program has adopted robust consumer protection and marketing protocols, as well as quality assurance and control mechanisms for participating contractors.

BE-3: Solar Installations

DRP amended the zoning code to support and facilitate responsible development of small-scale systems and utility-scale facilities in a manner that helps California meet its goals for renewable energy generation and GHG reduction, while minimizing environmental and community impacts. The Renewable Energy Ordinance was adopted by the Board on December 13, 2016 and went into effect January 12, 2017.

BE-4: Alternative Renewable Energy Programs (Ongoing)

In 2015, the Board directed County staff to evaluate the feasibility of implementing a community choice aggregation (CCA) program in the County. In 2017, the Board of Supervisors approved the creation of a joint powers authority to implement a community choice energy program for Los Angeles County. That program, known as the Clean Power Alliance (CPA), began operating in 2018 and now serves 32 jurisdictions across Los Angeles and Ventura counties representing 3 Million residents.

The CPA offers three tiers of electric service (Lean Energy at 36 percent renewable, Clean Energy at 50 percent renewable, and 100 percent Renewable). Residents and enrolled businesses in unincorporated Los Angeles County are receiving 50 percent renewable energy, plus an additional 20 percent of GHG-free power from hydroelectric sources.

BE-7: Landfill Biogas (ongoing)

Landfills in the unincorporated areas reported a total installed (rated) capacity of 96 MW for 2018. These landfill gas-to-energy installations include Ameresco Chiquita Energy, Puente Hills Energy Recovery, Calabasas Gas-to-Energy, and Sunshine Gas Producers Renewable Energy Project.

WAW-1: Per Capita Water Use Reduction Goal (Ongoing)

The County continues to hold free Smart Gardening Program public workshops on topics such as composting, water-wise gardening, and organic gardening. In 2018, PW held 95 workshops, and participated in 25 community events. More than 2,000 residents attended the workshops, and 600 backyard compost bins and 490 worm compost bins were sold to residents. The County allocated \$300,000 for the Waterworks Districts' Water Customer Rebate program in Fiscal

Introduction

Year 2016-17. In Fiscal Year 2018-19, the Cash for Grass Rebate entailed 40 application pre-approvals, totaling \$49,000 paid. The high efficiency appliance/device rebates provided \$3,900 in rebates.

WAW-2: Recycled Water Use, Water Supply Improvement Programs, and Stormwater Runoff (Ongoing)

The passage of Measure W in November 2018 created L.A. County's Safe Clean Water Program. The Safe, Clean Water Program's goals include improving and protecting water quality; capturing rain and stormwater to increase safe drinking water supplies and preparing for future droughts; and protecting public health and marine life by reducing pollution, trash, toxins and plastics entering Los Angeles County waterways, bays, and beaches.

Beginning in late 2019, the program will generate about \$285 Million through a special parcel tax of 2.5 cents per square foot for impermeable surface area (about \$83 a year for the average County household). This includes paved and developed areas where rainfall cannot be absorbed into the ground and instead runs off as stormwater into the flood control district system.

SW-1: Waste Diversion Goal (Ongoing)

The Conversion Technology Program established numerical milestones to measure implementation progress in the County. The program aims to increase the current in-County capacity from 65 tons per day (tpd) to 3,000 tpd by 2035. The County is developing multiple waste diversion projects and is on track to achieve the next milestone of 500 tpd of in-County waste conversion capacity by 2025.

PW prepared draft revisions to an existing ordinance to increase the construction and demolition debris recycling requirement from 50 to 70 percent for

projects in the unincorporated areas. The stakeholder engagement process on the draft ordinance is expected to occur in mid-2020.

LC-1: Develop Urban Forests

The County adopted the Tree Planting Ordinance in 2016, amending the zoning code to establish new tree planting requirements for projects to provide environmental benefits. The Tree Committee of the County's Healthy Design Workgroup coordinates interdepartmental efforts to preserve, maintain, and expand the County's urban forest in low income, tree-poor neighborhoods. In 2018, County Departments collaborated with community-based organizations to complete a youth-led tree planting and education campaign, resulting in over 1,600 trees planted in low-tree canopy, disadvantaged areas of the San Gabriel Valley; the project resulted in approximately 100 youth trained on life skills, job skills, and tree benefits, planting, and care. In addition, over 1,500 households received education about the benefits of trees.

In 2019, County departments led a second tree planting and community education project, this time in unincorporated West Athens. By completion, the West Athens tree planting and education project will have resulted in 650 trees planted. Additionally, during 2018-19, PW planted over 4,000 new parkway trees.

LC-2: Create New Vegetated Open Space (Ongoing)

DRP amended the zoning code to allow selected accessory uses within utility rights-of-way, such as parks, open space, and limited agricultural uses, with development standards and streamlined review procedures. This ordinance was adopted on June 6, 2018.

LC-3: Promote the Sale of Locally Grown Foods and/or Products

DRP amended the zoning code to implement State law AB 551 Urban Agriculture Incentives Zone. This ordinance provides procedures to incentivize growing local foods on private property and was adopted by the Board in April 2016.

LC-4: Protect Conservation Areas

DRP amended the zoning code to update the County's Significant Ecological Areas Ordinance. This update would guide development to areas that would create the least impact to environmental resources on private properties. It also contains requirements for conservation where resources are impacted. This ordinance was adopted by the Board in December 2019.

1.3.2.3 OurCounty Sustainability Plan

In August 2019, the Board of Supervisors adopted OurCounty, a regional sustainability plan for Los Angeles County. It includes a bold and cross-cutting set of goals, strategies, actions, and targets for creating a resilient, inclusive, and sustainable County. The OurCounty Sustainability Plan does not supersede the General Plan, which addresses land use policy in the unincorporated areas. Instead, it is a forward-looking strategic plan towards a common sustainability vision for the 88 cities and unincorporated areas of Los Angeles County. The CAP is consistent with the sustainability plan's vision for the region, but differs in that it is part of the General Plan Air Quality Element and focuses specifically on reducing GHG emissions from community activities projected for the unincorporated areas of Los Angeles County.

Introduction

1.4 Agency Highlights

The CAP focuses on strategies and actions to reduce community-wide GHG emissions in unincorporated areas. The strategies and actions listed within this plan are those that affect the broader community, as opposed to actions that reduce the GHG emissions from municipal operations. Even though County operations account for a small fraction of the total emissions, the County is committed to doing its part to achieve carbon neutrality by mid-century. County departments provided the following descriptions to highlight ongoing efforts to incorporate climate change mitigation into agency missions and day-to-day operations.

Department of Health Services (DHS)

To help curtail the rate of GHGs being emitted into the environment, the Department of Health Services has been replacing many of its vehicles with eco-friendlier vehicles and working with ISD in installing additional EV Chargers at all DHS Hospitals, Clinics and Office sites. Promoting EV Chargers encourages employees to purchase EV for their daily work commute. For many years, DHS has also embraced a flexible work schedule, including the 4/10 schedule for certain job functions. This eliminates about 52 days of required transportation for staff each year, thus reducing the amount of pollutants being released into the air.

Department of Parks and Recreation (DPR)

Parks play an important role in the reduction of local GHGs. DPR has led the way—and will continue to lead the way—in reducing emissions by applying diverse carbon-neutrality strategies.

DPR has invested heavily in technologies and equipment that conserve energy, which has dramatically reduced the Department's direct and indirect emissions generation. For instance, the Department has installed Variable Frequency Drives at 21 County pools, which helps regulate pool heating while reducing energy consumption and indirect emissions. DPR has also completed 18 lighting retrofit projects at 33 facilities with energy efficient equipment. These projects have generated 2.6 Million kWh in annual energy savings and mitigated 1,785 MTCO_{2e}.

When designing new parks or refurbishing existing ones, DPR's Park Design Guidelines sets standards for reducing emissions through the application of sustainable design elements. DPR's facilities are designed to reduce water consumption with modern landscaping and irrigation features, to reduce energy usage and emissions via the water-energy nexus. Parks are also designed to accommodate on-site green waste recycling and mulching to divert emissions generation at landfills. To moderate the effects of urban heat island effect and its impacts on air quality, parks are designed with cool paving and cool roof surfaces with vegetation that will enhance thermal comfort and the quality of urban forests. These design elements are critical in high-need areas disproportionately affected by higher temperatures and mitigate the harmful effects of climate change on vulnerable communities.

Department of Public Works (PW)

PW has implemented numerous measures to address and reduce GHG emissions associated with PW operations and facilities across all core services. PW maintains a total of 53 EV charging stations (EVCS), of which, 27 EVCS are located at Headquarters, with 18 for fleet vehicles and 9 available to both employees and the general public. PW has also installed infrastructure

to accommodate the future installation of an additional 20 EVCS in the visitor parking lot and entered into an agreement with Southern California Edison (SCE) to install an additional 46 EVCS. A solar carport was installed at PW Headquarters which is estimated to generate about 1.4 Million kWh and will offset about 25 percent of Headquarters grid energy demands. PW operates the San Gabriel Dam Hydroelectric Plant, which generates an average of 8 Million kWh annually. In addition, PW is actively exploring opportunities to produce renewable energy at PW facilities. Further, since 2015, implementation of PW's sustainable pavement program has removed 20,800 tons of carbon dioxide and saved about 65 Million kWh of electricity. An operational change PW has implemented is the Scrape Your Plate Program, which is designed to prevent organic waste from ending up in the landfills and has diverted 19 tons of food waste from PW facilities for anaerobic digestion and diverted 2.5 tons of food waste to our on-site worm composting bins. Since 2017, Scrape Your Plate has avoided 15 MTCO_{2e} which is comparable to removing the annual emissions from 3 passenger vehicles.

Department of Regional Planning (DRP)

DRP led efforts to the Board's adoption of the General Plan which prioritized sustainability and climate action by including the County's first CAP as part of the County's General Plan. The General Plan addresses GHG impacts through goals and policies that discourages sprawling development patterns, encouraging infill development in areas near transit, services and existing infrastructure; and prioritizing biodiversity and its importance in creating a sustainable Los Angeles County. Through the establishment of natural resource protection policies within the General Plan, Santa Monica Mountains Local Coastal Plan, the Santa Monica Mountains North Area Plan, the Antelope Valley and Santa Clarita Valley Area

Plans and SEA Program, impacts to natural areas are reduced and future development is guided to areas that minimizes environmental impacts.

DRP is updating the Santa Monica Mountains North Area Plan to further prioritize biodiversity and creating the first East San Gabriel Valley Area Plan to encourage infill development and alternative modes of transportation options.

Los Angeles County Library

Los Angeles County Library continues its commitment towards adopting sustainable solutions for a greener environment. All new library development projects and library renovations feature sustainable lighting and HVAC systems, resulting in the reduction of energy consumption. Moreover, ongoing water conservation efforts, which include the replacement of drinking fountains with fountains featuring bottle filling stations, and the replacement of traditional landscapes to sustainable and xeriscape landscapes, further support the department's sustainability goals. Los Angeles County Library currently maintains a 13 percent hybrid vehicle fleet ratio, is progressing towards finalizing the procurement of electric bookmobiles, and operates the headquarters facility on a 4/10 work schedule, all significantly reducing the contribution of GHG emissions produced.

1.4 Climate Change Impacts

The scope of the CAP focuses on curbing climate change by reducing GHG emissions. The region, however, is already experiencing the impacts of a changing climate. While mitigation efforts seek to prevent climate change with actions that reduce emissions, concurrent efforts seek to minimize the impacts of climate change through actions that adapt and prepare communities for climate change. Mitigation and adaptation efforts are interrelated.

California's Fourth Climate Change Assessment, released in 2018, highlighted key projected climate impacts on the Los Angeles region taking into account both low-emission and high-emission future scenarios, with the latter containing more extreme impacts that are projected to occur if emissions are not significantly cut.¹ These climate impacts include:

- **Warming and Extreme Heat:** extreme temperatures are expected to increase in both intensity and frequency in the Los Angeles region. Under a higher emissions scenario, the hottest day of the year may be up to 10 degrees Fahrenheit warmer by late-century. Average maximum daily temperatures are projected to increase around 4 to 5 degrees Fahrenheit by mid-century, and 5 to 8 degrees Fahrenheit by late-century.
- **Drought and Precipitation:** while average precipitation is projected to change only slightly overall, the dry and wet extremes are projected to increase. This "precipitation whiplash" means the region is likely to experience drier periods than we have historically experienced followed by much

wetter periods, with more extreme rain events that can lead to increased water scarcity, mudslides, and flooding.

- **Wildfire:** wildfires have increased in size, frequency and intensity. Seven out of the 10 most destructive wildfires in California have occurred in the past five years.²
- **Sea Level Rise:** sea levels are projected to rise roughly 1 to 2 feet by mid-century and as much as 8 to 10 feet by the end of the century based on the most extreme projections. Sea level rise can exacerbate the impacts of high tides, storm surges, and heavy precipitation, and can lead to increased coastal flooding.

Taking action to prevent climate change can help reduce the speed and magnitude at which climate change impacts a community. While climate adaptation is not the primary focus of this CAP, many GHG reduction strategies in this CAP also will increase climate resilience. As Figure 4 illustrates, many climate strategies achieve both mitigation and adaptation benefits.

As the CAP scope focuses on mitigation efforts, the County recognizes that additional climate adaptation planning is necessary to prepare communities for climate change. In turn, the County will be developing a climate vulnerability assessment and adaptation planning process in the near future.

Climate Mitigation and Adaptation

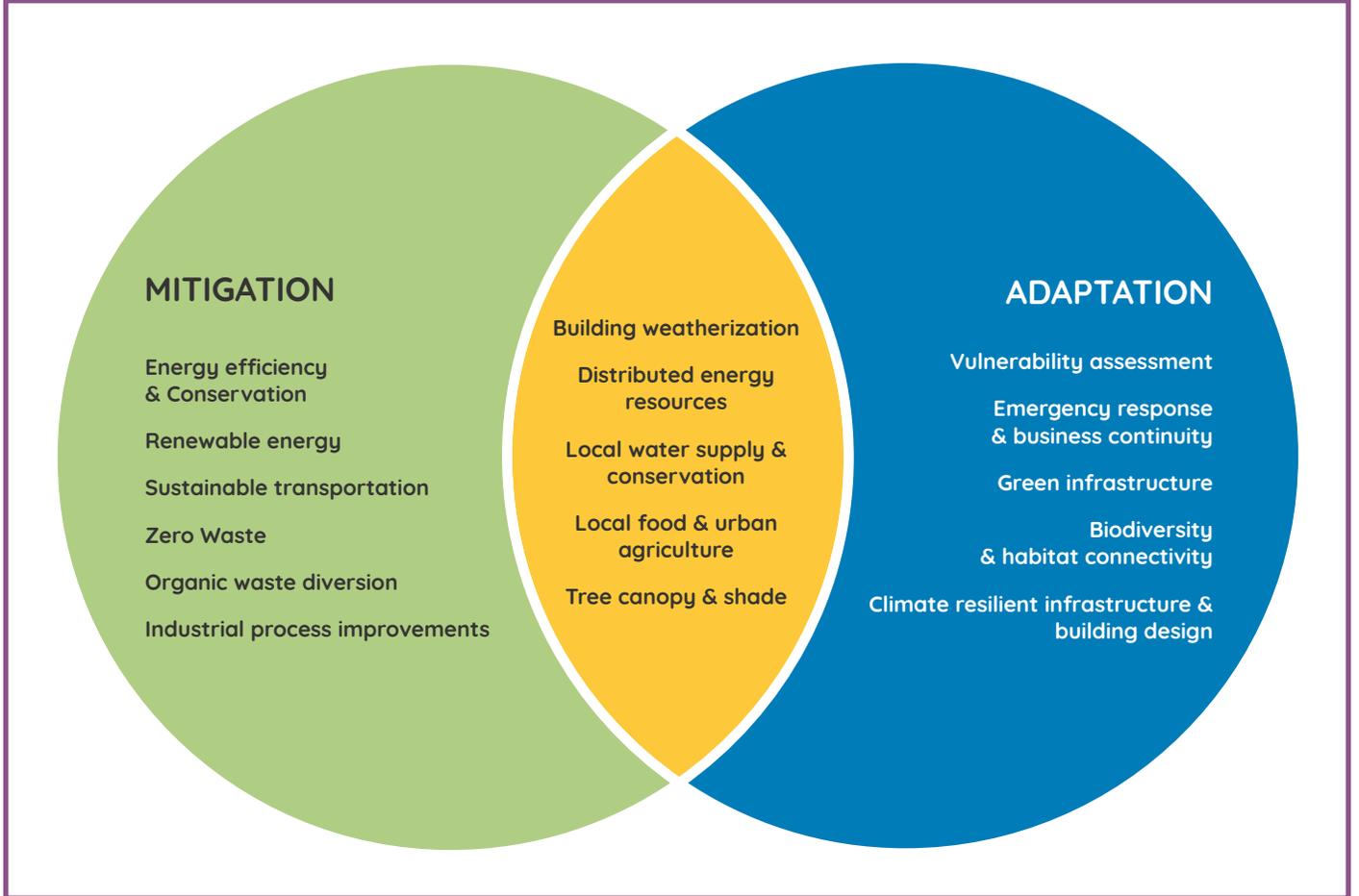


Figure 4: Climate Mitigation and Adaptation

2. GHG Emissions Inventory and Projections

2.1 Community Scale GHG Emissions Inventory

In preparation of the 2020 CCAP for unincorporated Los Angeles County, the County had developed a 2010 GHG emissions inventory. The 2010 inventory was developed using the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI US Community Protocol). This inventory reported a total of 7.9 Million MTCO₂e for the year 2010. For this CAP update, the County utilized the 2015 GHG inventory prepared for the OurCounty Sustainability Plan, which disaggregates the GHG information for the unincorporated areas.

The 2015 GHG inventory for unincorporated Los Angeles County is a Global Protocol for Community-Scale GHG Emissions (GPC) compliant inventory, which accounts for community-wide GHG emissions in line with 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines for National Greenhouse Gas Inventories. The inventory accounts for the carbon dioxide equivalent (CO₂e) of seven gases, including biogenic and non-biogenic carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). These emissions are organized into five sectors based on the activity type or source, as follows:

- **Transportation:** The Transportation sector accounts for emissions from fuel combustion and electricity consumption from passenger vehicles, goods movement, public transit systems (including bus and rail), and off-road vehicles.
- **Stationary Energy:** The Stationary Energy sector includes emissions from energy use in buildings, facilities, and stationary (off-road) equipment. Emissions from fossil fuel combustion at on-site and off-site energy generation facilities, fossil fuel extraction, as well as fugitive emissions released from oil and natural gas systems are reported under this sector.
- **Waste:** The Waste sector accounts for emissions generated at landfills, biological treatment (composting and anaerobic digestion), waste incineration facilities, and wastewater treatment plants.
- **Industrial processes and product use (IPPU):** Emissions from non-energy industrial activities and use of products like refrigerants, foams, aerosols, and alternatives to ozone depleting substances, among other fossil fuel-based solvents, are reported under IPPU.
- **Agriculture, forestry and, other land use (AFOLU):** AFOLU sector accounts for emissions (and removals) from land-related emissions, including agriculture,

2015 GHG Emissions by Sector

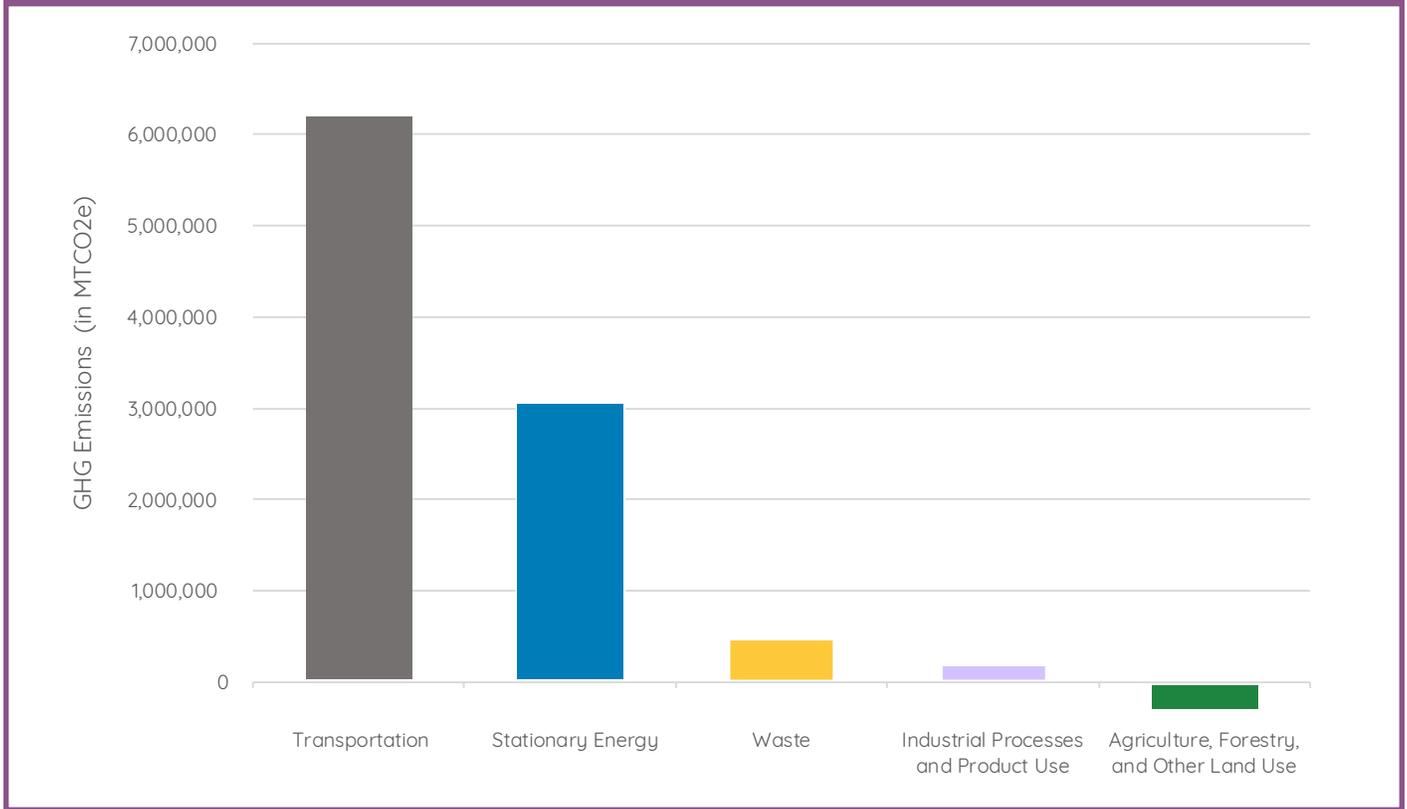


Figure 5: 2015 GHG Emissions by Sector for Unincorporated Los Angeles County

forestry, and aggregate sources (including wildfires, biomass burning, and fertilizer use) are reported under this sector.

In 2015, emissions generated by community activities occurring in unincorporated areas were 9.6 Million^{*} MTCO₂e. The Transportation sector was the largest contributor of GHG emissions, accounting for 62 percent of the total GHG emissions. On-road transportation trips from passenger vehicles and trucks generated 6.1 Million MTCO₂e in 2015. The Stationary Energy sector, which

includes emissions from residential, commercial and institutional uses, and industrial buildings and stationary equipment, was the second largest contributor

of GHG emissions, accounting for 30 percent of the total 2015 inventory. The remaining emission sources are waste and wastewater (5 percent), refrigerants and other industrial products (3 percent), and other land-related activities including forestry and agriculture. The 2015 emissions breakdown by sector and sub-sector is shown in Figure 5 and Table 3 (see Appendix A for more details about the 2015 GHG Inventory).

* The 2015 GHG emissions inventory for unincorporated Los Angeles County is adapted from the countywide 2015 Community GHG Inventory prepared for the OurCounty Sustainability Plan. As per the OurCounty Sustainability Plan, 2015 emissions from unincorporated areas were 9.5 MMTCO₂e. The CAP accounts for emissions from all the sectors and sub-sectors reported in the OurCounty Sustainability Plan and includes additional community activities for unincorporated areas (including off-road equipment, buses, and product use emissions, as detailed in Appendix A.1), thus reporting 9.6 Million MTCO₂e in 2015.

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Table 3: 2015 GHG Emissions by Sub-sector (in MTCO₂e)

Sector/Sub-sector	2015 GHG Emissions
Transportation	6,171,940
On-road Transportation	6,162,528
Railways	9,413
Stationary Energy	3,022,779
Energy Industries	1,235,395
Residential Buildings	1,030,285
Commercial and Institutional Buildings	386,753
Manufacturing and Construction Buildings	309,449
Fugitive Emissions from Oil and Natural Gas Systems	58,222
Agriculture, Forestry and Other Fishing Activities	2,675
Waste	469,997
Solid Waste Disposal	404,604
Biological Treatment of Solid Waste	10,214
Wastewater Treatment	55,179
Waste Incineration	1,184
IPPU	253,529
Product Use	253,529
AFOLU	-313,906
Aggregate sources and non-CO ₂ emissions sources	25,048
Land and Land-use Change	-338,954 *

Notes:

* Negative value indicates carbon dioxide sequestration from forest lands.

Differences between 2010 and 2015 GHG Emissions Inventory

Methodologies both for accounting emissions and for reporting activity data continue to evolve over time. The 2015 inventory follows current best practices for GHG accounting and for data reporting. The 2015 GHG emissions inventory is compliant with the GPC Protocol, as GPC superseded ICLEI in December 2014. The 2010 and 2015 emissions were accounted using different data sources and classified under different sector and sub-sectors as per the requirements of the respective protocols. Furthermore, the 2010 emissions inventory used Global Warming Potential (GWP) values from the IPCC Fourth Assessment Report (AR 4), whereas the 2015 GHG emissions inventory uses IPCC Fifth Assessment Report (AR5) GWP values.

Due to the differences between the two protocols, activity data sources, and GWP values, it is not possible to compare 2010 and 2015 emissions directly. To track emission reduction between 2010 and 2015, the 2010 GHG emissions inventory was backcasted using the GPC Protocol and estimated to be 9.7 Million MTCO_{2e}. Based on this revaluation, it is estimated that community scale GHG emissions declined by 1 percent from 2010 to 2015 and per capita GHG emissions declined by 4 percent from 2010 to 2015. For more details about the differences between 2010 and 2015 emissions inventories and the backcasting methodology, please refer to Appendix A.2.

2.2 Mitigation Scenarios

The CAP defines two mitigation scenarios that represent alternatives for future GHG emission projections: 1) the Adjusted Business-as-usual (BAU) Scenario, and 2) the Carbon Neutrality Scenario. These scenarios are modeled based on various factors including socioeconomic trends, population growth, historic emission patterns, and technological evolution. Figure 6 shows population and employment growth projections from 2015 to 2045 for unincorporated Los Angeles County. The 2015 GHG emissions inventory serves as the baseline year from which future emission levels are forecasted.

Over the past two decades, the State has established multiple GHG reduction targets between 1990 and 2050 to address various aspects of climate change. AB 32 and SB 32 codified the State’s GHG reduction targets by requiring that statewide GHG emissions be reduced to 1990 levels by 2020. To assess the County’s progress since 1990 and ensure that interim emissions reduction targets in the CAP align with commitments prior to 2015, a backcasting model was developed for unincorporated areas (see Appendix A2). GHG emissions from each sector and sub-sector were scaled from 2015 to 1990 by using County and State parameters. These parameters include historic population and employment data for

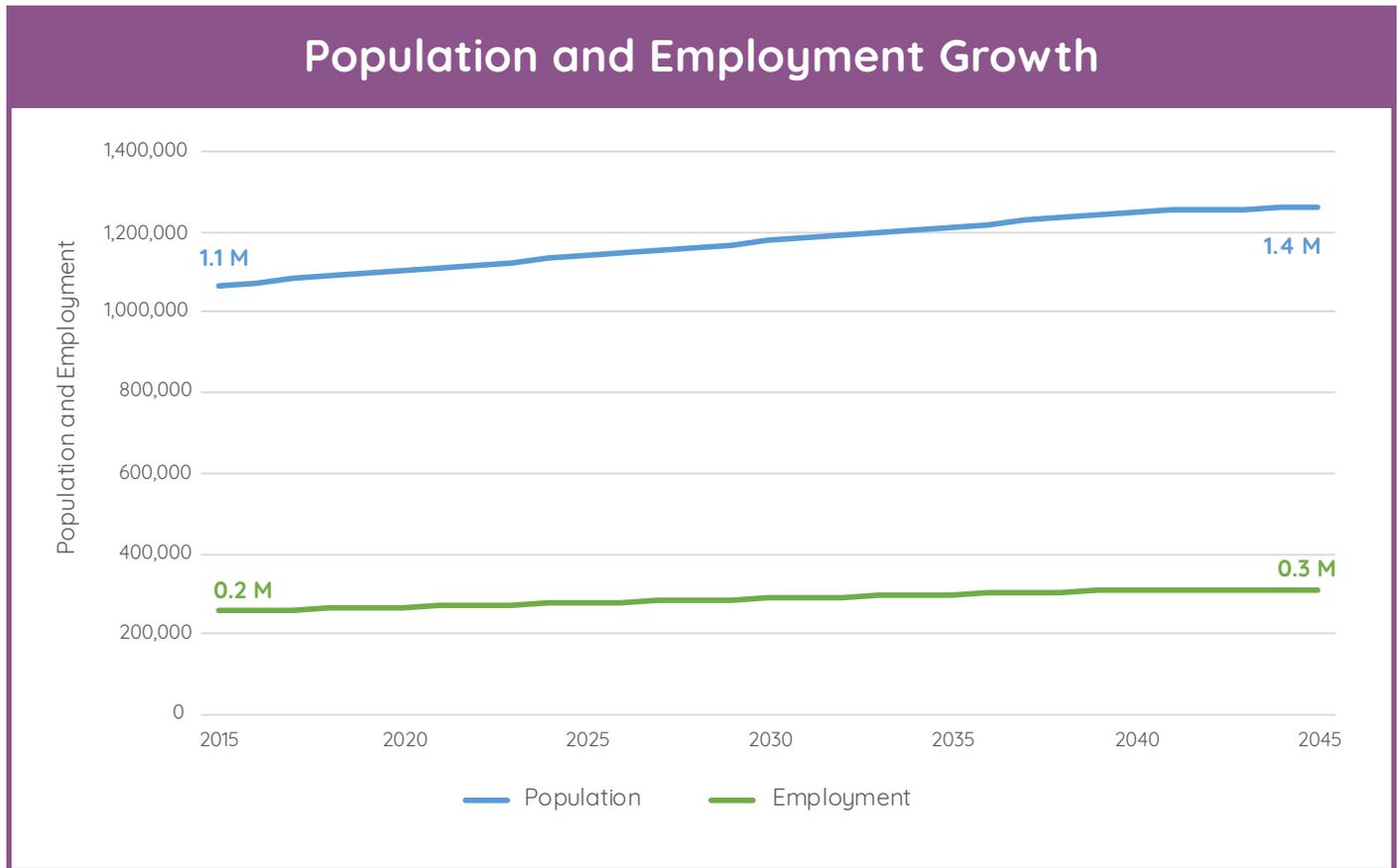


Figure 6: Population and Employment Growth in Unincorporated Los Angeles County³

unincorporated areas, countywide trends for vehicle miles travelled, electricity and natural gas consumption, and waste disposal. Due to data limitations, GHG emissions and sequestration from AFOLU, energy industries, and fugitive emissions from oil and natural gas systems could not be scaled back to 1990 and are assumed constant between 1990 and 2010.

2.2.1 Adjusted Business-as-usual (BAU) Scenario

The Adjusted BAU Scenario accounts for future growth and State and County legislative regulations implemented prior to EO B-55-18 (September 9, 2018), which set a carbon neutrality target by 2045. The Adjusted BAU Scenario assumes that population, housing, employment, and transportation activity would continue to grow over time. This growth is assumed to be consistent with:

- Population projections by the Southern California Association of Governments (SCAG) to 2035 adopted under the 2012 Regional Transportation Model* and by California Department of Transportation (CalTrans) to 2045;
- Building demolition and construction rates from building area data obtained from the Los Angeles County Office of the Assessor;

- Passenger vehicles and trucks miles and emissions estimated using the SCAG Regional Travel Demand Model and Emissions Factors (EMFAC) model; and
- Zero-emission vehicle (ZEV) adoption rate: 40 percent of all sales by 2030 and 100 percent of all sales by 2050.

This scenario also accounts for existing legislative regulations such as California Energy Commission’s 2016 Title 24 building energy efficiency requirements, Renewable Portfolio Standards (SB 350), the CalRecycle 75 percent waste diversion initiative (AB 341), Pavley and Advanced Clean Car Standards (AB 1493), and Low Carbon Fuel Standards (EO S-01-07). Furthermore, existing mitigation commitments by County agencies and select strategies from the 2020 CCAP and OurCounty Sustainability Plan are also incorporated in this scenario. Table 4 shows the forecasted total emissions for each target year under the Adjusted BAU scenario. In this scenario, total emissions for the unincorporated areas are forecasted to decline from 9.6 Million MTCO₂e in 2015 to 8.4 Million MTCO₂e by 2045. The table also shows the forecasted emissions broken out for a sector.

Table 4: GHG emissions forecast for Adjusted BAU Scenario (in MTCO₂e)

Sector	2015	2025	2035	2045
Transportation	6,171,940	5,858,237	5,544,596	5,448,938
Stationary Energy	3,022,779	2,622,957	2,467,413	2,358,915
Waste	469,997	417,810	472,279	489,776
IPPU	253,529	280,409	317,148	331,560
AFOLU	-313,906	-299,892	-285,878	-271,864
Total	9,604,339	8,879,521	8,515,558	8,357,325

* The 2035 General Plan for Los Angeles County uses the 2008 Regional Transportation Model.

GHG Emissions Inventory and Projections

2.2.2 Carbon Neutrality Scenario

The Carbon Neutrality Scenario builds upon the Adjusted BAU Scenario and accounts for the CAP strategies (see Chapter 3 and Appendix B), SB 100, and EO B-30-15 to achieve carbon neutrality by 2045. This scenario carries over some of the actions from the 2020 CCAP, and emissions reduction targets from the OurCounty Sustainability Plan (2019), Los Angeles Cleantech Incubator (LACI) Transportation Electrification Partnership’s Zero Emissions Roadmap 2.0 (2019), Metro Climate Action and Adaptation Plan (2019) and the County Department of Public Works Roadmap to a Sustainable Waste Management Future (2014).^{4,5,6,7} This scenario is consistent with targets codified under the following State legislations and regional plans:

STATE TARGETS

AB 32, SB 32 and EO B-30-15:

- By 2020, reduce GHG emissions to 1990 levels;
- by 2030, reduce GHG emissions to 40 percent below 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

EO B-55-18:

By 2045, achieve statewide carbon neutrality.

SB 100:

By 2045, 100 percent of retail sales of electricity to California end-use customers is sourced from eligible renewable energy resources and zero-carbon resources.

REGIONAL TARGETS

SB 375/SCAG Regional Transportation Plan:

- By 2020, reduce GHG emissions by 8 percent per capita;
- by 2035, reduce GHG emissions by 19 percent per capita; and
- by 2040, reduce GHG emissions by 21 percent per capita, below a 2005 baseline.

COUNTY TARGETS

OurCounty Sustainability Plan:

- By 2025, reduce GHG emissions by 25 percent below 2015 levels;
- by 2035, reduce GHG emissions by 50 percent below 2015 levels; and
- by 2045, achieve carbon neutrality in unincorporated Los Angeles County.

Table 5: GHG emissions forecast for Carbon Neutrality Scenario (in MTCO₂e)

Sector	2015	2025	2035	2045
Transportation	6,171,940	5,369,481	3,177,072	942,748
Stationary Energy	3,022,779	1,638,404	1,119,718	555,632
Waste	469,997	119,404	90,204	62,633
IPPU	253,529	170,893	134,273	97,653
AFOLU	-313,906	-363,618	-376,313	-389,009
Total	9,604,339	6,934,565	4,144,955	1,269,657

Under the Carbon Neutrality Scenario, GHG emissions are estimated to decrease from 9.6 Million MTCO_{2e} in 2015 leaving about 1.3 Million MTCO_{2e} of residual emissions in 2045, as shown in Table 5. These emissions are expected to originate from buildings and manufacturing facilities that reduce but cannot not eliminate natural gas, energy industries, heavy duty trucks, fluorinated products, and fertilizer use. Based on the scenarios, it is estimated that unincorporated Los Angeles County can reduce GHG emissions by 9 percent from 1990 baseline under the Adjusted BAU Scenario and by 86 percent from 1990 baseline under the Carbon Neutrality Scenario.

Los Angeles County expects that new technologies would be established over the next 25 years that would further reduce residual emissions. Staff will

continually monitor the state of technology and will update the CAP every five years to include new policies and programs that would take advantage of these technology advances. If the residual emissions, shown in Figure 7, cannot be eliminated through new technologies, the County will consider the purchase of certified carbon credits (or offsets) to achieve carbon neutrality by 2045. Purchased offsets will be registered in a carbon offsets registry approved by the State of California and/or the U.S. Government for that purpose. Offsets will be prioritized according to proximity to Los Angeles County with a preference for local offsets when available, followed by offsets within California.

GHG Emissions Inventory and Projections

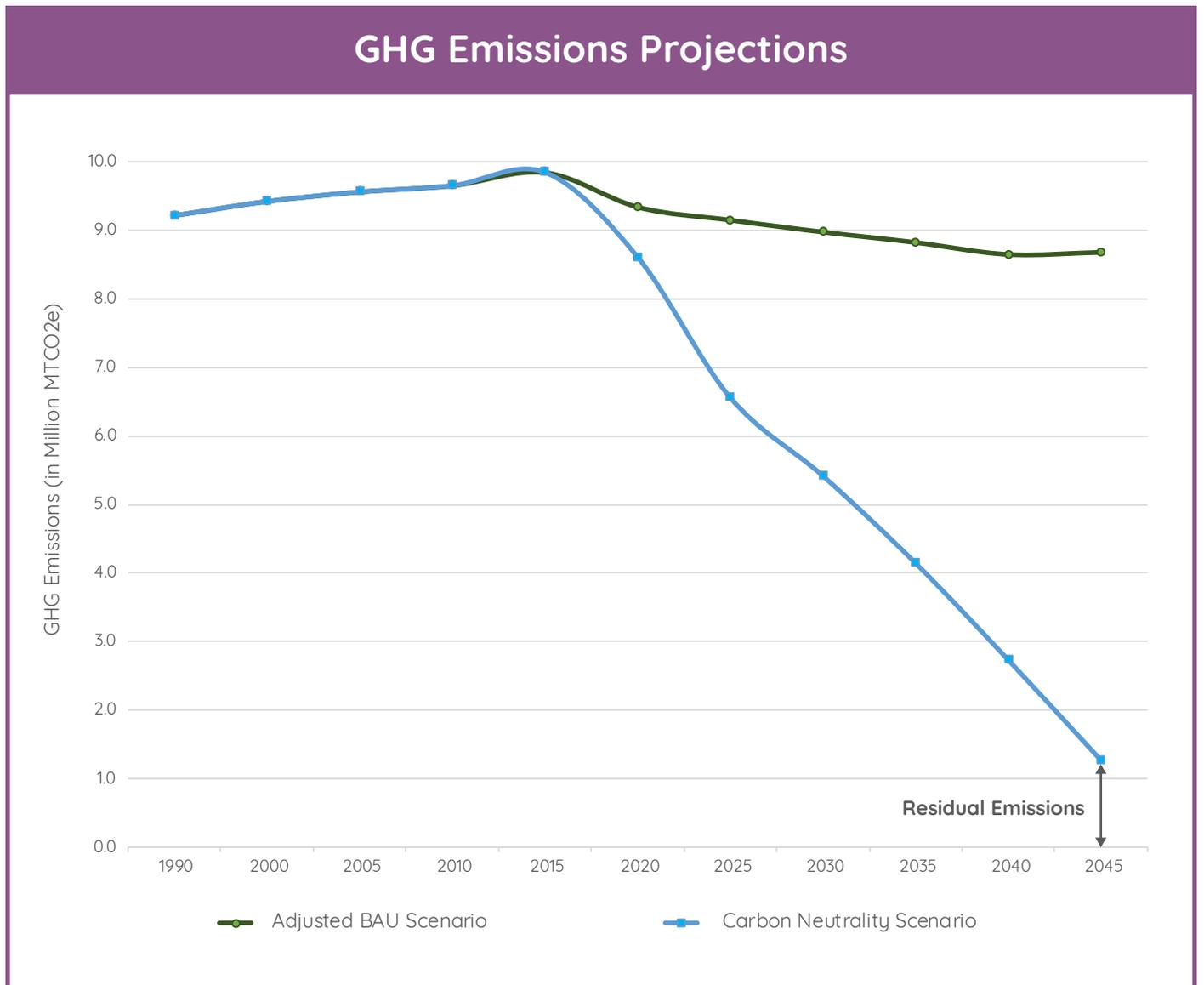


Figure 7: 1990 to 2045 GHG Emissions reduction by Scenario

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3. Mitigation Strategies and Actions

GHG Mitigation Potential

Strategies are long-range approaches that the County will undertake to achieve its overall GHG reduction targets. They are further defined by sector-specific and time-defined targets that state the levels of performance that are required. For example, a major strategy is to decarbonize building energy use - reducing the usage of energy derived from fossil fuels. This will require a multi-pronged effort in order to effect meaningful progress towards the 2045 targets of reducing residential and industrial building energy use intensity (EUI) by 35 percent and commercial building EUI by 50 percent below 2015 levels.

Climate strategies have been assessed with quantitative modelling to estimate the GHG impact of reducing emissions from activities (e.g., reduce single occupancy vehicle trips) and encouraging activities that mitigate emissions (e.g., increase tree canopy cover). The assumptions underpinning this model incorporate State and County policies, resolutions, programs, and incentives, as well as outreach and education activities (detailed in the Appendix). The mitigation pathways analysis quantifies the cumulative emission reduction achieved through each strategy from 2015 to 2025, 2015 to 2035, and 2015 to 2045. For more details about the methodology for assessing GHG mitigation potential, please refer to Appendix B.

Within each strategy are a series of actions, the specific policies, programs, or tools that will be implemented to support long-range planning. Actions are intended to be implemented in a coordinated manner to make meaningful progress toward the strategy. For example, to decarbonize building energy use and meet the associated targets, the County will enact a mixture of

incentives (e.g., streamlining development reviews for net zero energy buildings), mandates (e.g., establishing carbon intensity limits), and public investment (e.g., expanding energy efficiency programs offered SoCalREN). The strategies include a combination of actions that incorporate ordinances, State and County policies, resolutions, programs, and incentives, as well as outreach and educational activities. The reduction potential of individual actions is evaluated as major, minor, or enabling based on their approximate contribution towards meeting strategy targets. The actions are denoted using the following symbols:

-  Major Actions
-  Minor Actions
-  Enabling Actions

Major Actions

Major actions are those that significantly reduce urban carbon emissions in systems and sub-systems, as defined in the Carbon Neutral Cities Alliance’s Framework for Long-Term Deep Carbon Reduction Planning, as listed below:⁸

- Transportation
 - Private Vehicles
 - Commercial Freight
 - Air
 - Public Transit
 - Bicycling
 - Walking

- Energy Supply
 - Electricity
 - Thermal Combustion (Natural Gas, Fuel Oil, etc)
- Building Energy Efficiency and On-site Renewable Energy
 - Single Family Residential
 - Multi-Family
 - Small Commercial
 - Large Commercial
 - Industrial
 - Institutional
(Education, Medical/Laboratory, etc.)
- Transportation
 - Private Vehicles
 - Commercial Freight
 - Air
 - Public Transit
 - Bicycling
 - Walking
- Solid Waste
 - Commodities
(Paper, Textiles, Plastics, Metals, etc.)
 - Organics/Biological Materials
 - Industrial Waste (Chemicals, etc.)
 - Construction and Demolition

Minor Actions

Minor actions also contribute to GHG reduction, but they have a modest mitigation impact on the aforementioned systems and sub-systems. Minor actions are tied to other regional planning efforts and contribute to a wide array of benefits besides climate change mitigation. The intent behind this classification is not to suggest that minor actions are less important, as all these actions need to be implemented to achieve climate neutrality. Instead, these categories are meant to show which actions will require the most sophisticated and concerted efforts to transform urban systems. For example, action SE1 requires benchmarking of all buildings over 20,000 square feet and action SE2 establishes carbon intensity limits for buildings above 20,000 square feet. Action SE1 is classified as a minor action because benchmarking building data is essential for identifying appropriate energy conservation and emission reduction measures. Action SE2 however is classified as a major action because imposing carbon intensity limits will directly reduce emissions from large buildings.

Enabling Actions

Certain actions that have little direct impact on GHG mitigation are nonetheless critical for facilitating or accelerating other emissions reduction actions; these have been classified as enabling actions. For example, action CL1 describes collaborations with cities and other jurisdictions. While this activity does not directly reduce emissions, the sharing of information and knowledge is expected to lead to the implementation of best practices to reduce GHG emissions.

Mitigation Strategies and Actions

Targets

Each strategy includes the related GHG emissions reductions targets. Additional targets are from the LACI Zero Emissions Roadmap and California State legislation and County ordinances.

OurCounty Sustainability Plan

Actions from the OurCounty Sustainability Plan are noted with a symbol and the Sustainability Plan action number as follows:

- **OurCounty #84**

Adaptation Actions

Actions that reduce risks associated with environmental hazards and human vulnerability and enhance adaptive capacity of natural and infrastructure systems are noted with the following symbol

-  Adaptation Actions

Lead County Department / Partners

Each climate action lists the lead County department(s) and potential partners for implementation.

Timeframe

Each action has a timeframe for implementation.

- Short-term: By 2025
- Medium-term: By 2035
- Long-term: By 2045

Cost Analysis

The rough order of magnitude (ROM) costs incurred by the County for implementing each climate action was estimated using precedents and comparable projects in New York City and the City of Los Angeles. The five classifications used are:

- \$: Less than \$500,000 USD
- \$\$: 500,000 to 2 Million USD
- \$\$\$: 2 Million to 15 Million USD
- \$\$\$\$: 15 Million to 150 Million USD
- \$\$\$\$\$: More than 150 Million USD

Generally, actions that are not capital-intensive actions, for example, ordinance approval are assumed to have relatively lower costs. Conversely, capital-intensive actions involving County-led infrastructure construction are assumed to be high cost.

Co-benefits

Each action includes icon(s) for co-benefits to the community that are in addition to GHG mitigation potential. Co-benefits are evaluated using a qualitative approach and are grouped based on the five “Guiding Principles” from the General Plan and themes identified in the OurCounty Sustainability Plan. The methodology for defining co-benefits are provided in Appendix C.

Smart Growth

Community Services

Strong and Diverse Economy

Natural Resources Management

Healthy, Livable, and Equitable Communities

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Climate Leadership

The County recognizes that achieving carbon neutrality requires large-scale transformations extending well beyond the borders of unincorporated areas. While most strategies and actions within the CAP are organized by reporting sector, the strategy and associated actions under the Climate Leadership section are focused on collaborations and partnerships that will be necessary to realize deep carbon reductions across sectors and geographies.

Mitigation Strategies and Actions: Climate Leadership



Strategy 1: Lead by example towards carbon neutrality

To achieve carbon neutrality, the County will leverage its influence as a climate leader, collaborating with other local jurisdictions as well as the private, institutional, and non-profit sectors. Recognizing that no single entity has direct control over community-wide GHG emissions, a collaborative approach is essential to realize equitable and sustainable climate actions for a carbon neutral Los Angeles County.

2025 Target	2035 Target	2045 Target
Reduce GHG emissions by 25% below 2015 levels	Reduce GHG emissions by 50% below 2015 levels	Achieve carbon neutrality in unincorporated Los Angeles County
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Sunset Strategy 0.1 million MTCO ₂ e	Sunset Strategy 3.4 million MTCO ₂ e	Sunset Strategy 10.1 million MTCO ₂ e

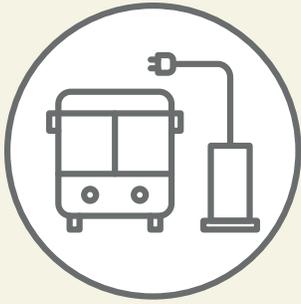
Action	Implementation	Co-Benefits
CL1: Convene and collaborate with cities and other jurisdictions to support deep carbon reductions by sharing information, creating templates for sustainability planning or model ordinances, and convening workshops.	Lead: Chief Executive Office Short-Term \$	Natural Resources Management
 Enabling Action		
CL2: Collaborate with the City of Los Angeles and other cities to develop a sunset strategy for all oil and gas operations that prioritizes disproportionately affected communities.	Lead: Chief Executive Office Partners: Cities, California Geologic Energy Management Division, Department of Regional Planning Long-Term \$\$	Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities
 Major Action OurCounty #84	\$\$	

Mitigation Strategies and Actions: Climate Leadership



Action	Implementation	Co-Benefits
<p>CL3: Collaborate with the City of Los Angeles and others to develop a “Just Transition” plan and task force that examines the impact of the transition to a cleaner economy on disadvantaged workers, identifies strategies for supporting displaced workers, and develops recommendations for ensuring inclusive employment practices within growth sectors of the economy.</p>	<p>Lead: Chief Executive Office</p> <p>Partners: City of Los Angeles, Department of Consumer and Business Affairs, Department of Regional Planning, Labor Unions, Department of Parks and Recreation, Los Angeles County Economic Development Corporation, Department of Workforce Development, Aging and Community Services</p> <p>Medium-Term</p>	<p>Strong and Diverse Economy</p>
<p> Enabling Action OurCounty #59</p>	<p>\$\$</p>	
<p>CL4: Create a volunteer leadership initiative and public-private partnership between the County and leaders in the community, and in the private, institutional, and non-profit sectors who have committed to or can encourage carbon neutrality.</p>	<p>Lead: Chief Executive Office</p> <p>Medium-Term</p> <p>\$\$</p>	<p>Strong and Diverse Economy; Natural Resources Management</p>
<p> Enabling Action</p>		
<p>CL5: Obtain a Transformative Climate Communities implementation grant.</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Los Angeles County Development Authority</p> <p>Medium-Term</p>	<p>Strong and Diverse Economy; Natural Resources Management</p>
<p> Enabling Action OurCounty #152</p>	<p>\$</p>	





Transportation

Activities within the transportation sector are responsible for the majority of GHG emissions in the unincorporated area because the dominant form of mobility in Los Angeles County is vehicles that run on fossil fuels. Land use patterns developed over time – including the unincorporated areas’ road and highway networks, streetscapes, and parking infrastructure – have been designed to prioritize and promote the usage of cars and trucks. The County will address transportation emissions by prioritizing public transportation, walking, biking, and active transit options, and other alternatives to single occupancy trips. For trips requiring vehicles, the County will focus on advancing zero-emission and near-zero-emission technologies.

Mitigation Strategies and Actions: Transportation



Strategy 2: Promote transit oriented communities

Transit oriented communities are ones that are walkable and are shaped around high-quality transit. They require land use planning and community development decisions that encourage pedestrian-friendly urban design and community-serving amenities like parks and retail to be co-located with transit access. This form of development enables people to choose walking, biking, and other micromobility options, thus reducing Vehicle Miles Travelled (VMT) and associated vehicular emissions. Transit oriented communities are also defined by their parking reform policies that provides a price signal to encourage sustainable modes of transportation, reduce congestion, and GHG emissions.

High Quality Transit Areas (HQTAs) are areas within one half-mile of a well-served transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours. The proximity to high-quality transit incentivizes people to choose public transit for longer trips, thus reducing the number of vehicle trips required. While land use strategies are fundamental to achieving GHG reductions, the ability to truly achieve the VMT targets set in this strategy is dependent on a number of factors, including improved options for non-vehicle trips, which are addressed under other strategies.

The targets being set by the County under this strategy are intentional and meant to reflect the incredible need to take aggressive action in changing our land use and travel patterns. The County will focus on increasing density near transit and not in transit-inaccessible areas while limiting displacement of existing residents. It is also necessary to note that the targets set in this strategy will not be achievable without fully implementing actions from Strategy 3 and supporting expanded regional transit.

2025 Target	2035 Target	2045 Target
Increase new housing built within 1/2 mile of high frequency transit to 50% Reduce VMT per capita to 20 miles	Increase new housing built within 1/2 mile of high frequency transit to 65% Reduce VMT per capita to 15 miles	Increase new housing built within 1/2 mile of high frequency transit to 75% Reduce VMT per capita to 10 miles
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Transit Oriented Communities -	Transit Oriented Communities 0.7 million MTCO ₂ e	Transit Oriented Communities 12.6 million MTCO ₂ e

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T1: Expand the number and extent of transit oriented communities, by encouraging development within High Quality Transit Areas, while ensuring vital public amenities such as parks and active transportation infrastructure are included.</p> <p> Major Action OurCounty #49</p> <p> Adaptation Action</p>	<p>Lead: Department of Regional Planning</p> <p>Partners: Department of Public Works, Cities, Department of Parks and Recreation, Metro and other agencies</p> <p>Medium-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>T2: Develop community plans that will increase the percentage of residents who could live and work within the same community, and that could decrease the vehicle miles traveled.</p> <p> Minor Action</p>	<p>Lead: Department of Regional Planning</p> <p>Long-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>T3: Develop land use tools that will facilitate increased production of various housing types, such as duplex and triplex buildings, where appropriate.</p> <p> Enabling Action OurCounty #46</p>	<p>Lead: Department of Regional Planning</p> <p>Partners: Department of Public Works</p> <p>Short-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>T4: Develop and implement a comprehensive parking reform strategy, which should include, but not be limited to: elimination of minimum parking requirements for all new residential units, establishment of parking maximums within ½ mile of high quality transit stops, creation and expansion of parking benefit districts, and incentives for developers to provide less than maximum allowable parking.</p> <p> Enabling Action OurCounty #99</p>	<p>Lead: Department of Regional Planning</p> <p>Partners: Department of Public Works</p> <p>Short-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Transportation



Strategy 3: Reduce single occupancy vehicle trips

Single occupancy vehicles (SOV) are the dominant mode of transportation in unincorporated areas. SOV use is carbon intensive, space-inefficient, and generates significant amounts of nitrogen oxides, carbon monoxide, and particulate matter (PM). Exposure to these air pollutants in high concentrations can lead to preventable health problems and premature death from asthma, bronchitis, and other heart related diseases.

Bike and pedestrian facilities, carpooling programs, shuttle services, and transit are all alternatives to single occupancy trips that help to reduce GHG emissions while improving air quality and public safety by shifting the mode of transportation. The County will pursue a wide array of policies and programs to improve the safety, convenience, affordability, and attractiveness of sustainable transportation. The County will also explore transit and active transportation solutions suitable for rural communities in unincorporated areas.

2025 Target	2035 Target	2045 Target
15% of all trips are taken by foot, bike, micro mobility, or public transit	30% of all trips are taken by foot, bike, micro mobility, or public transit	50% of all trips are taken by foot, bike, micro mobility, or public transit
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Mode Shift 0.1 million MTCO ₂ e	Mode Shift 0.6 million MTCO ₂ e	Mode Shift 1.0 million MTCO ₂ e

Action	Implementation	Co-Benefits
T5: Develop a transportation technology strategy to proactively address how evolving tech-enabled mobility options can support public transit and advance OurCounty goals.	Lead: Department of Public Works Partners: Chief Executive Office, Department of Public Health Short-Term	Smart Growth; Community Services
 Enabling Action OurCounty #102	\$\$	

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T6: Create a more connected and safer bikeway network by expanding bikeway facilities and deploying protected and separated lanes.</p> <p> Minor Action</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$\$\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T7: Implement and regularly update the County's Pedestrian Action Plan, Bicycle Master Plan, Active Transportation Plans, and Vision Zero Action Plan.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works, Department of Public Health</p> <p>Medium-Term</p> <p>\$\$\$\$\$</p>	<p>Smart Growth; Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>T8: Expand shade along and over pedestrian networks through zoning code revisions that encourage shade-providing building features, such as galleries, arcades, and awnings, tree planting, and explore the encroachment of such features into portions of the Right-of-Way.</p> <p> Enabling Action  Adaptation Action</p>	<p>Lead: Department of Regional Planning, Department of Public Works</p> <p>Medium-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>T9: Enhance pedestrian and bicycle environments through shading and energy efficient pedestrian-scale lighting and shading to promote active transportation.</p> <p> Enabling Action  Adaptation Action</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T10: Expand and improve frequency of existing network of County shuttles and explore new mobility services, such as micro transit, in unincorporated County areas.</p> <p> Major Action</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$\$\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T11: Install bus-only lanes and signal prioritization along major thoroughfares, and work with transit agencies and neighboring jurisdictions to plan and install full bus rapid transit infrastructure along priority corridors, as appropriate.</p> <p> Minor Action OurCounty #98</p>	<p>Lead: Department of Public Works</p> <p>Partners: Cities, Metro and other transit agencies</p> <p>Short-to-Medium Term</p> <p>\$\$\$\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T12: Set aside maintenance funds to ensure public transit facilities, including stations and stops, are safe and clean to enhance the transit experience and increase ridership.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works</p> <p>Short-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T13: Develop and implement a transportation demand management (TDM) ordinance that requires developers to incorporate measures such as subsidized transit passes and car share.</p> <p> Enabling Action OurCounty #101</p>	<p>Lead: Chief Executive Office, Department of Public Works</p> <p>Partners: Department of Regional Planning, Metro and other transit agencies</p> <p>Short-to-Medium-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T14: Partner with local jurisdictions and transit agencies such as the City of Los Angeles and Metro to develop and implement a "Transit First" policy and mobility advocacy campaign that is consistent with and supportive of the County's Vision Zero Plan.</p> <p> Enabling Action OurCounty #96</p>	<p>Lead: Department of Public Works</p> <p>Partners: City of Los Angeles, Metro and other transit agencies</p> <p>Short-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T15: Build shade structures at major transit stops, such as those identified in Metro’s Active Transportation Strategic Plan, prioritizing communities with high heat vulnerability.</p> <p> Enabling Action OurCounty #30</p> <p> Adaptation Action</p>	<p>Lead: Department of Parks and Recreation, Department of Public Works</p> <p>Partners: Department of Public Health, Department of Regional Planning, Metro and other transit agencies</p> <p>Short-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>T16: Offer free transit passes for students, youth, seniors, disabled, and low-income populations.</p> <p> Minor Action OurCounty #100</p>	<p>Lead: Department of Public Works</p> <p>Partners: Metro and other transit agencies</p> <p>Short-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T17: Develop and implement a Shade Corridor Ordinance to encourage continuous shade for human movement in areas with high public transit use to protect public transit riders from extreme heat.</p> <p> Enabling Action  Adaptation Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: Department of Regional Planning, Department of Public Health</p> <p>Medium-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Transportation



Strategy 4: Institutionalize low-carbon transportation

Motorized vehicles that are needed for travel across unincorporated areas must transition to zero carbon and near zero carbon technologies, such as electric vehicles (EV) and Zero-emission vehicles (ZEV). Expanding access to charging infrastructure will address a key barrier to the adoption of EVs. The County will work to provide access to clean transportation across unincorporated areas, by developing programs that include e-bikes, zero-emission buses and shuttles, and electrified trains.

2025 Target	2035 Target	2045 Target
<p>30% of all new light-duty vehicles are zero emission vehicles</p> <p>500 EV and 200 ZEV charging stations are installed at County-owned properties, public venues, and in public Right-of-Way</p>	<p>80% of all new light-duty vehicles are zero emission vehicles</p> <p>1000 public EV and ZEV charging stations are installed at County-owned properties, public venues, and in public Right-of-Way</p>	<p>100% of all new light-duty vehicles are zero emission vehicles</p>
<p>By 2028, 80% of all light-duty vehicle sales are EVs or ZEVs</p>		
<p>By 2030, 80-100% of Metro buses on the road and 100% of the new buses are electric</p>		<p>By 2050, Metrolink trains are 85% electric</p>

Mitigation Strategies and Actions: Transportation



GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
EV Adoption 2.9 million MTCO ₂ e	EV Adoption 15.6 million MTCO ₂ e	EV Adoption 33.6 million MTCO ₂ e
Bus Fleet Electrification 0.1 million MTCO ₂ e	Bus Fleet Electrification 0.5 million MTCO ₂ e	Bus Fleet Electrification 0.9 million MTCO ₂ e
Metrolink Electrification 0.002 million MTCO ₂ e	Metrolink Electrification 0.008 million MTCO ₂ e	Metrolink Electrification 0.02 million MTCO ₂ e

Action	Implementation	Co-Benefits
T18: Pilot vehicle-grid integration applications at workplaces to maximize the benefits that daytime charging for plug-in electric vehicles (PEVs) can have on the grid, including demand response to reduce peak loads and energy storage during periods of renewable overproduction.	Lead: Internal Services Department, Department of Public Works Medium-Term \$	Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities
 Enabling Action  Adaptation Action		
T19: Install EV chargers at County facilities and properties for public, employee, and fleet use, prioritizing locations in disadvantaged communities.	Lead: Internal Services Department Partners: Los Angeles County Fire Department, Los Angeles County Sheriff's Department, Metro, Department of Public Works, Department of Parks and Recreation, Department of Beaches and Harbors Medium-Term \$\$\$	Smart Growth; Community Services; Healthy, Livable, and Equitable Communities
 Minor Action OurCounty #92		

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T20: Partner with a car or ride-sharing organization to provide access to EVs for low-income and disadvantaged community residents.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: Chief Executive Office</p> <p>Medium-Term</p> <p>\$\$</p>	<p>Healthy, Livable, and Equitable Communities</p>
<p>T21: Advocate at the State level for policies and programs for ride share organizations to help all ride-share drivers go electric.</p> <p> Enabling Action</p>	<p>Lead: Chief Executive Office</p> <p>Medium-Term</p> <p>\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T22: Expand electric options for promoting active transportation, such as electric scooters and e-bikes.</p> <p> Major Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: Chief Executive Office</p> <p>Medium-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Healthy, Livable, and Equitable Communities</p>
<p>T23: Electrify County bus fleet and shuttles by 2030, and partner with transit agencies for group purchasing and siting of shared charging and/or fueling infrastructure.</p> <p> Major Action</p>	<p>Lead: Department of Public Works, Internal Services Department</p> <p>Long-Term</p> <p>\$\$\$\$\$</p>	<p>Healthy, Livable, and Equitable Communities</p>
<p>T24: Advocate for the electrification of Metrolink.</p> <p> Minor Action</p>	<p>Lead: Chief Executive Office</p> <p>Long-Term</p> <p>\$</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Transportation



Strategy 5: Accelerate freight decarbonization

The County has a large and diverse economy that relies on freight vehicles. Decarbonizing freight, particularly heavy-duty trucks is more challenging than passenger (and other light- and medium-duty) vehicles. Transitioning to zero- and near-zero-emission freight technologies has the potential to significantly reduce air pollution and health risks in areas with high exposure. Recognizing these technological challenges, the County will take concerted efforts to incentivize and implement freight decarbonization technologies, specifically focusing on charging infrastructure.

2025 Target	2035 Target	2045 Target
25-50% of medium-duty delivery trucks are electric or zero emission		
By 2028, 5% of heavy-duty delivery trucks are electric or zero-emission		10% of heavy-duty delivery trucks are electric or zero emission
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Freight Decarbonization 0.3 million MTCO ₂ e	Freight Decarbonization 1.4 million MTCO ₂ e	Freight Decarbonization 3.3 million MTCO ₂ e

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T25: Implement freight decarbonization technologies along highway corridors passing through unincorporated communities.</p> <p> Major Action</p>	<p>Lead: Internal Services Department</p> <p>Long-Term</p> <p>\$</p>	<p>Strong and Diverse Economy; Healthy, Livable, and Equitable Communities</p>
<p>T26: Streamline permitting of charging and fueling infrastructure for medium- and heavy-duty vehicles.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Transportation



Strategy 6: Explore zero emission technologies for off-road vehicles and equipment

Off-road vehicles and equipment produce GHG emissions and air pollution from fossil fuel combustion. Off-road engines are generally more emission-intensive than their on-road counterparts. The problem is so acute that the CARB expects that leaf blowers, lawnmowers, and other small off-road equipment may soon create more ozone pollution than all passenger vehicles across the State. The County will use the tools at its disposal to ban the sale of small gas-powered equipment, require the use of zero-emission or near-zero-emission equipment for County projects and contracts, and work with the air quality management districts to encourage similar practices across the unincorporated County.

2025 Target	2035 Target	2045 Target
	Decrease average off-road diesel PM emissions to 100%	
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Alternative Off-road Equipment 0.03 million MTCO ₂ e	Alternative Off-road Equipment 0.2 million MTCO ₂ e	Alternative Off-road Equipment 0.5 million MTCO ₂ e

Action	Implementation	Co-Benefits
T27: Develop an ordinance that prohibits the sale of gas-powered leaf blowers, lawnmowers, and other small off-road equipment in unincorporated County.	Lead: Treasurer and Tax Collector Medium-Term \$	Strong and Diverse Economy; Healthy, Livable, and Equitable Communities
 Enabling Action		

Mitigation Strategies and Actions: Transportation



Action	Implementation	Co-Benefits
<p>T28: Partner with SCAQMD and AVAQMD to encourage the use of zero-emission and near-zero-emission construction, agriculture, and manufacturing equipment.</p> <p> Minor Action</p>	<p>Lead: Chief Executive Office</p> <p>Long-Term</p> <p>\$</p>	<p>Strong and Diverse Economy; Healthy, Livable, and Equitable Communities</p>
<p>T29: Require whenever feasible the use of zero-emission and near-zero-emission construction, agriculture, and manufacturing equipment for County projects.</p> <p> Minor Action</p>	<p>Lead: Department of Public Works</p> <p>Long-Term</p> <p>\$\$\$</p>	<p>Strong and Diverse Economy; Healthy, Livable, and Equitable Communities</p>



Stationary Energy

Stationary energy reductions will be achieved through strategies to reduce overall consumption with improved energy and water management, transition away from fossil fuel-based building systems, and increased proportion of energy supply that comes from both local and utility-scale renewable energy.

Mitigation Strategies and Actions: Stationary Energy



Strategy 7: Decarbonize building energy use

Electricity and natural gas consumption are the most commonly used energy sources in residential and non-residential buildings, and are the second largest contributor of GHG emissions in unincorporated areas. As the grid becomes cleaner, emissions from electricity consumption will continue to decline. However, a vast majority of buildings use natural gas to provide space heating, domestic hot water, and cooking. To achieve carbon neutrality, both natural gas and electric building systems need to be decarbonized.

A foundational first step is to track and report building energy and water use to raise awareness and highlight opportunities for savings in existing buildings. Green building standards and net zero energy incentives for new developments, will significantly reduce GHG emissions. Scaling up energy efficiency programs and developing energy and emissions performance standards will reduce overall energy demand, avoiding costly new infrastructure and enabling an easier transition to renewable energy sources.

2025 Target	2035 Target	2045 Target
<p>Reduce building EUI by 15% below 2015 levels</p> <p>50% of all new buildings and major building renovations to be net zero carbon</p>	<p>Reduce residential and industrial building EUI by 25% and commercial building EUI by 35% below 2015 levels</p> <p>75% of all new buildings and major building renovations to be net zero carbon</p>	<p>Reduce residential and industrial building EUI by 35% and commercial building EUI by 50% below 2015 levels</p> <p>100% of all new buildings and major building renovations to be net zero carbon</p>
<p>GHG Mitigation Potential 2015-2025</p>	<p>GHG Mitigation Potential 2015-2035</p>	<p>GHG Mitigation Potential 2015-2045</p>
<p>Energy Efficiency Retrofits</p> <p>1.1 million MTCO₂e</p> <p>Building Decarbonization</p> <p>-1.1 million MTCO₂e*</p>	<p>Energy Efficiency Retrofits</p> <p>1.4 million MTCO₂e</p> <p>Building Decarbonization</p> <p>1.3 million MTCO₂e</p>	<p>Energy Efficiency Retrofits</p> <p>1.8 million MTCO₂e</p> <p>Building Decarbonization</p> <p>5.5 million MTCO₂e</p>

* Between 2015 and 2025, the grid electricity is more carbon intensive than natural gas. Emissions from Strategy 7 therefore increase during this timeframe as buildings switch from natural gas to electricity. However, emissions decline after 2025 as unincorporated Los Angeles County receives 100 percent renewable electricity (Strategy 10).

Mitigation Strategies and Actions: Stationary Energy



Action	Implementation	Co-Benefits
<p>SE1: Adopt an energy and water efficiency ordinance for existing buildings, requiring all buildings over 20,000 square feet to benchmark and report their energy and water use, and demonstrate their pathway to energy and water efficiency.</p> <p> Enabling Action OurCounty #117</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Department of Public Works</p> <p>Short-Term</p> <p>\$</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>SE2: Establish carbon intensity limits for buildings over 20,000 square feet.</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Major Action</p>		
<p>SE3: Expand and enhance the energy efficiency programs offered by the Southern California Regional Energy Network (SoCalREN).</p>	<p>Lead: Internal Services Department</p> <p>Medium-Term</p> <p>\$\$\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Minor Action OurCounty #118</p>		
<p>SE4: Adopt building code requirements for electric water and space heating and encourage alternatives to other natural gas uses in new and existing buildings.</p>	<p>Lead: Department of Public Works</p> <p>Short-Term</p> <p>\$</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Major Action</p>		
<p>SE5: Adopt CALGreen Tier 1 green building standards and identify which Tier 2 standards could be adopted as code amendments.</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$</p>	<p>Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Major Action OurCounty #31</p>		

Mitigation Strategies and Actions: Stationary Energy



Action	Implementation	Co-Benefits
<p>SE6: Incentivize net zero energy residential and commercial buildings through streamlined development reviews.</p> <p> Enabling Action</p>	<p>Lead: Department of Regional Planning, Department of Public Works</p> <p>Short-Term</p> <p>\$</p>	<p>Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>SE7: Collaborate with the City of Los Angeles, Santa Monica, and other members of the Building Decarbonization Coalition to develop building energy and emissions performance standards that put the unincorporated County on a path towards building decarbonization.</p> <p> Enabling Action OurCounty #85</p> <p> Adaptation Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: Cities</p> <p>Medium-Term</p> <p>\$\$</p>	<p>Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>SE8: Develop design guidance for landscape plans to protect solar access for rooftop solar panels while maximizing biodiversity and water conservation.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works, Department of Regional Planning</p> <p>Medium-Term</p> <p>\$</p>	<p>Natural Resources Management</p>

Mitigation Strategies and Actions: Stationary Energy



Strategy 8: Promote water conservation

Water consumption in unincorporated areas has a significant carbon footprint, because energy is required to collect, treat, store, and convey water to homes and businesses from distant sources. By prioritizing water conservation programs, expanding the County’s efforts towards water recycling and reuse, and promoting net zero water developments, the County will simultaneously reduce GHG emissions and lessen community-wide dependency on imported water sources..

2025 Target	2035 Target	2045 Target
Per capita water demand does not exceed 115 gallons per day	Per capita water demand does not exceed 100 gallons per day	Per capita water demand does not exceed 85 gallons per day
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Energy Savings from Water Supply Systems 0.1 million MTCO ₂ e Emissions Reduction due to Wastewater Volume Reduction 0.1 million MTCO ₂ e	Energy Savings from Water Supply Systems 0.13 million MTCO ₂ e Emissions Reduction due to Wastewater Volume Reduction 0.3 million MTCO ₂ e	Energy Savings from Water Supply Systems 0.17 million MTCO ₂ e Emissions Reduction due to Wastewater Volume Reduction 0.6 million MTCO ₂ e

Mitigation Strategies and Actions: Stationary Energy



Action	Implementation	Co-Benefits
<p>SE9: Promote the use of recycled water and gray water to be used for agricultural and industrial purposes.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: Sanitation Districts of Los Angeles County, Department of Public Health, Department of Regional Planning</p> <p>Short-Term</p> <p>\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management</p>
<p>SE10: Develop a Net Zero Water Ordinance for new development.</p> <p> Minor Action OurCounty #114</p> <p> Adaptation Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: Chief Executive Office, Department of Regional Planning, Sanitation Districts of Los Angeles County, Registrar-Recorder/County Clerk</p> <p>Medium-Term</p> <p>\$</p>	<p>Community Services; Natural Resources Management;</p>
<p>SE11: Identify and remove barriers to installing and retrofitting on-site gray water recycling systems while protecting public health.</p> <p> Enabling Action</p>	<p>Lead: Department of Public Works, Department of Public Health</p> <p>Long-Term</p> <p>\$</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>SE12: Invest in multi-benefit water management solutions that diversify and increase reliability of the water supply, reduce dependency on imported water, prioritize solutions that mimic natural systems, and maximize benefits to Native and disadvantaged communities.</p> <p> Minor Action OurCounty #34</p> <p> Adaptation Action</p>	<p>Lead: Department of Public Works</p> <p>Partners: California Department of Transportation Cities, Department of Parks and Recreation, Local water agencies, Metro, Sanitation Districts of Los Angeles County</p> <p>Short-to-Long Term</p> <p>\$\$\$\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Stationary Energy



Action	Implementation	Co-Benefits
SE13: Encourage residents to replace water-intensive landscaping, such as grasses, with water-conserving landscaping through education and incentive programs.	Lead: Department of Public Works Short-Term \$\$\$	Natural Resources Management
 Enabling Action  Adaptation Action		

Mitigation Strategies and Actions: Stationary Energy



Strategy 9: Increase energy resilience

The County's goal to shift to a renewables-based electricity supply ensures equitable access to affordable, local, and reliable energy sources. An effort to develop a comprehensive community energy map will identify the geographic opportunities to deploy these distributed energy resources (DER) in an equitable manner. Prioritizing wildfire-prone communities will provide an alternative to the costly infrastructure upgrades that would be required to maintain uninterrupted power service. Enabling community shared solar will allow access to local renewable energy for renters and other potential customers. .

2025 Target	2035 Target	2045 Target
Increase DER capacity by 200MW based on 2018 baseline	Increase DER capacity by 500MW based on 2018 baseline	Increase DER capacity by 1 GW based on 2018 baseline

Ensure 10% of all DER installation in wildfire prone communities

GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Distributed Energy 0.5 million MTCO ₂ e	Distributed Energy 2.3 million MTCO ₂ e	Distributed Energy 6.1 million MTCO ₂ e

Action	Implementation	Co-Benefits
SE14: Develop a publicly-accessible community energy map that identifies opportunities for deploying distributed energy resources and microgrids in order to improve energy resiliency in disadvantaged communities.	Lead: Chief Executive Office Partners: Department of Public Works, Utilities Short-Term \$\$	Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities

 Enabling Action | **OurCounty #86**

 Adaptation Action

Mitigation Strategies and Actions: Stationary Energy



Action	Implementation	Co-Benefits
SE15: Investigate low- or no-cost options to provide community shared solar facilities on County property.	Lead: Chief Executive Office, Internal Services Department Partners: Department of Public Works, Utilities Short-Term	Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities
 Enabling Action OurCounty #87	\$	
SE16: Partner with the CPA to promote DER installation in unincorporated areas, prioritizing installation in wildfire prone communities.	Lead: Chief Executive Office Partners: Department of Public Works Medium-Term	Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities
 Enabling Action  Adaptation Action	\$\$	

Mitigation Strategies and Actions: Stationary Energy



Strategy 10: Increase renewable energy

Renewable energy supply is essential to achieve carbon neutrality. The recently formed Clean Power Alliance (CPA) enables the County to transition to a low-carbon energy future at an accelerated pace. The CPA is a community choice aggregation program that offers CPA participants the option to increase their share of renewable energy. The County can rely on electricity that is generated by both centralized and decentralized renewable energy sources, and reduce emissions from building and transportation systems.

2025 Target	2035 Target	2045 Target
<p>Install solar on 20% of commercial buildings over 50,000 square feet and at least 10% of single family residential buildings</p> <p>100% of all retail sales are from eligible renewable energy resources</p>	<p>Install solar on 40% of commercial buildings over 50,000 square feet and at least 25% of single family residential buildings</p>	<p>Install solar on 60% of commercial buildings over 50,000 square feet and at least 50% of single family residential buildings</p>
<p>GHG Mitigation Potential 2015-2025</p>	<p>GHG Mitigation Potential 2015-2035</p>	<p>GHG Mitigation Potential 2015-2045</p>
<p>Buildings and Stationary Equipment (100% Renewable Electricity)</p> <p>0.7 million MTCO₂e</p>	<p>Buildings and Stationary Equipment (100% Renewable Electricity)</p> <p>6.5 million MTCO₂e</p>	<p>Buildings and Stationary Equipment (100% Renewable Electricity)</p> <p>10.9 million MTCO₂e</p>
<p>Transportation Systems (100% Renewable Electricity)</p> <p>0.05 million MTCO₂e</p>	<p>Transportation Systems (100% Renewable Electricity)</p> <p>1.1 million MTCO₂e</p>	<p>Transportation Systems (100% Renewable Electricity)</p> <p>3.4 million MTCO₂e</p>

Mitigation Strategies and Actions: Stationary Energy



Action	Implementation	Co-Benefits
<p>SE17: Use County’s role in the CPA to encourage 100% renewable energy resource mix by 2025.</p> <p> Major Action</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Department of Public Works</p> <p>Medium-Term</p> <p>\$</p>	<p>Community Services; Healthy, Livable, and Equitable Communities</p>
<p>SE18: Leverage the County’s role in the CPA to encourage a community solar program that would provide access to solar photovoltaic (PV) energy generation for residents in multifamily buildings.</p> <p> Enabling Action</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Department of Public Works</p> <p>Medium-Term</p> <p>\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>SE19: Identify partnerships and incentives for accelerating solar installation in existing buildings and over parking lots.</p> <p> Enabling Action</p>	<p>Lead: Department of Regional Planning, Department of Public Works</p> <p>Partners: Department of Parks and Recreation, Department of Beaches and Harbors, Internal Services Department</p> <p>Medium-Term</p> <p>\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>SE20: Partner with the CPA to create programs for virtual net metering and programs to incentivize commercial scale renewable energy projects.</p> <p> Enabling Action</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Department of Public Works</p> <p>Long-Term</p> <p>\$\$</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>





Waste

The County will reduce GHG emissions from waste in a manner that prioritizes overall environmental benefit. This starts with expanded efforts to reduce and reuse waste at the source. Incentives and educational programs will be used to increase awareness about and bolster participation in recycling programs. Organic waste, which is responsible for the vast majority of GHG emissions in the waste sector, will be addressed through source reduction, donation of edible food, and composting, as well through waste conversion technologies such as anaerobic digestion and biomass conversion which produce biogas that can be used to produce heat and electricity, pipeline gas, and other beneficial products like compost and fertilizer. At wastewater treatment plants, biogas will be captured and converted into electricity.

Mitigation Strategies and Actions: Waste



Strategy 11: Introduce incentive-based systems to reduce waste

The County will analyze incentives and other strategies to reduce waste generation, promote source separation and increase landfill diversion. The County will also leverage incentives to encourage investment in local upcycling and recycling programs, so that residents and businesses can have expanded options to dispose waste responsibly.

2025 Target	2035 Target	2045 Target
Decrease overall per capita waste generation by 25% from 2017 baseline	Decrease overall per capita waste generation by 30% from 2017 baseline	Decrease overall per capita waste generation by 35% from 2017 baseline

Action	Implementation	Co-Benefits
<p>W1: Identify, where appropriate, best practice waste pricing programs to reduce waste generation, including but not limited to differential prices for waste based on amount generated in the residential sector and reforms to tipping rate structures.</p> <p> Enabling Action OurCounty #109</p>	<p>Lead: Department of Public Works</p> <p>Partners: Sanitation Districts of Los Angeles County</p> <p>Short-Term</p> <p>\$\$</p>	<p>Smart Growth; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>W2: Incentivize the development of local upcycling and recycling markets and quality recycled materials.</p> <p> Enabling Action OurCounty #122</p>	<p>Lead: Department of Public Works</p> <p>Partners: California Department of Resources Recycling and Recovery, Los Angeles County Department of Regional Planning, Registrar-Recorder/County Clerk</p> <p>Short-Term</p> <p>\$\$\$\$</p>	<p>Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Waste



Strategy 12: Generate widespread support for sustainable waste future

The County will promote waste diversion programs and requirements through a variety of communication channels. It will encourage recycling and upcycling in construction and public art projects, as well as support efforts to increase on-site organic waste processing. Expanding these programs will significantly reduce the unincorporated County's GHG emissions and increase awareness about sustainable waste management.

2025 Target	2035 Target	2045 Target
Divert 80% of the waste from landfills	Divert 90% of the waste from landfills	Divert 95% of the waste from landfills
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Waste Reduction 0.03 million MTCO ₂ e	Waste Reduction 0.3 million MTCO ₂ e	Waste Reduction 0.8 million MTCO ₂ e

Action	Implementation	Co-Benefits
W3: Engage and empower stakeholders through a sustainable waste management future communications campaign.	Lead: Department of Public Works Medium-Term \$\$\$	Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities
Enabling Action		
W4: Increase the diversion requirements in the County's Construction & Demolition debris ordinance, encourage the use of recycled-content materials in construction projects and incentivize use of recycled materials in public art projects funded or commissioned by the County.	Lead: Department of Public Works Partners: Arts and Culture Short-Term \$	Natural Resources Management; Healthy, Livable, and Equitable Communities
Major Action OurCounty #123		

Mitigation Strategies and Actions: Waste



Action	Implementation	Co-Benefits
<p>W5: Establish guidelines for large-quantity food waste or green waste generators to perform on-site composting, mulching or anaerobic digestion, and develop a marketing plan for the product.</p>	<p>Lead: Department of Agricultural Commissioner/Weights and Measures, Department of Public Works</p> <p>Partners: Department of Public Health</p> <p>Medium-Term</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Enabling Action OurCounty #120</p>	<p>\$\$</p>	
<p>W6: Promote and communicate countywide source separation, organic waste collection requirements, food waste reduction and donation, and local organic waste recycling programs, and conduct targeted, sector-based educational campaigns.</p>	<p>Lead: Department of Agricultural Commissioner/Weights and Measures, Department of Public Health, Department of Public Works</p> <p>Partners: California Department of Resources Recycling and Recovery</p> <p>Short-Term</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Minor Action OurCounty #121</p>	<p>\$</p>	

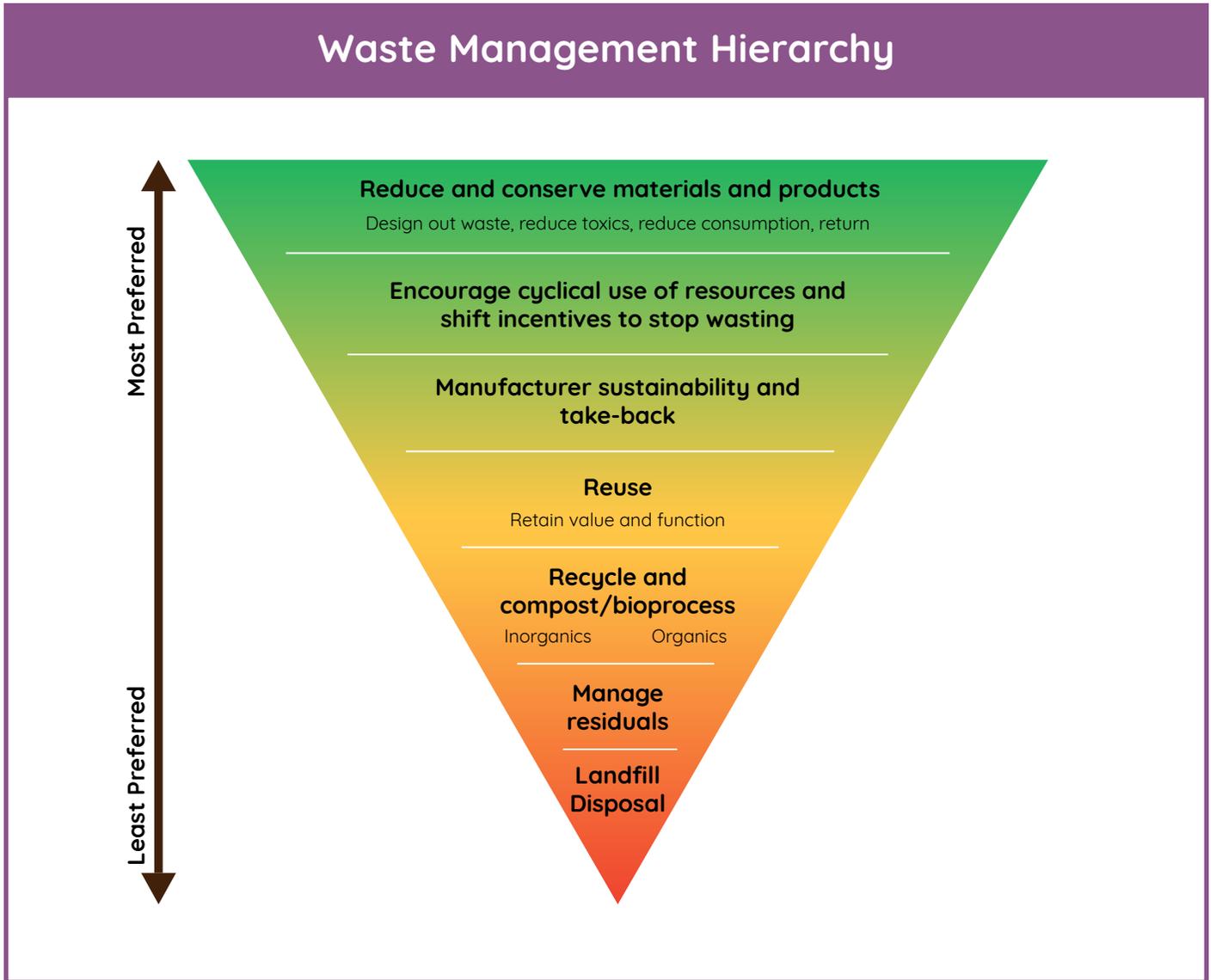


Figure 8: Waste Management Hierarchy



Strategy 13: Reduce and divert organic waste

Organic waste is made up of biodegradable materials from plants, animals, and other organisms. It includes food scraps and landscaping waste and is responsible for the majority of GHG emissions from the waste sector. Like other waste streams, the environmentally preferable approach is to reduce organic waste at the source instead of disposing it in landfills. When disposed in landfills, organic waste decomposes and produces landfill gas, which is comprised of carbon dioxide and methane, a potent GHG and short-lived climate pollutant. If recovered, landfill gas can be flared to reduce methane emissions or recovered for electricity production.

To achieve SB 1383 targets, the County needs to invest in new infrastructure to utilize organic waste in composting and anaerobic digestion facilities. Composting facilities can transform food and yard waste into nutrient rich compost. Anaerobic digestion facilities can process food waste, yard waste, and wastewater sludge to produce biogas, which is also comprised of methane, and digestate solids, which can be used as a fertilizer. Biogas produced at these facilities can be captured much more efficiently than landfill gas for electricity production.

2025 Target	2035 Target	2045 Target
<p>Reduce organic waste to landfills by 75% from 2014 baseline</p> <p>Reduce methane emissions by 30% from 2017 baseline</p>	<p>Reduce organic waste to landfills by 90% from 2014 baseline</p> <p>Reduce methane emissions by 45% from 2017 baseline</p>	<p>Reduce organic waste to landfills by 95% from 2014 baseline</p> <p>Reduce methane emissions by 60% from 2017 baseline</p>

Mitigation Strategies and Actions: Waste



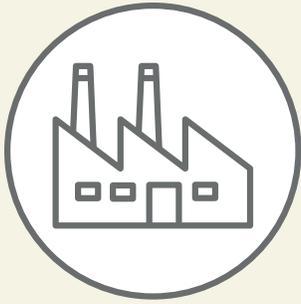
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Organic Waste Diversion 1.8 million MTCO ₂ e	Organic Waste Diversion 4.7 million MTCO ₂ e	Organic Waste Diversion 8.0 million MTCO ₂ e
Composting and Anaerobic Digestion -0.002 million MTCO ₂ e*	Composting and Anaerobic Digestion -0.005 million MTCO ₂ e	Composting and Anaerobic Digestion -0.008 million MTCO ₂ e
Biogas to Electricity -0.2 million MTCO ₂ e*	Biogas to Electricity -0.4 million MTCO ₂ e	Biogas to Electricity -0.7 million MTCO ₂ e

* Negative GHG mitigation potential values represent strategies that increase GHG emissions

* Negative GHG mitigation potential values represent strategies that increase GHG emissions

Action	Implementation	Co-Benefits
<p>W7: Enhance and expand the County's existing Food DROP food donation and redistribution program to divert edible food from landfills and make it available to food insecure communities.</p> <p>Major Action OurCounty #128</p>	<p>Lead: Department of Public Works</p> <p>Partners: Department of Public Health</p> <p>Short-to-Medium Term</p> <p>\$\$</p>	<p>Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>W8: Collaborate with waste haulers to develop organics collection and diversion programs in County unincorporated communities.</p> <p>Major Action</p>	<p>Lead: Department of Public Works</p> <p>Medium-Term</p> <p>\$\$\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>W9: Maximize organics diversion through neighborhood and regional composting, anaerobic digestion, chipping/grinding operations, and biomass conversion facilities.</p> <p>Major Action</p>	<p>Lead: Department of Public Works</p> <p>Long-Term</p> <p>\$\$\$\$</p>	<p>Community Services; Strong and Diverse Economy; Natural Resources Management</p>





Industrial Processes and Product Use

The County will reduce GHG emissions from waste in a manner that prioritizes overall environmental benefit. This starts with expanded efforts to reduce and reuse waste at the source. Incentives and educational programs will be used to increase awareness about and bolster participation in recycling programs. Organic waste, which is responsible for the vast majority of GHG emissions in the waste sector, will be addressed through source reduction, donation of edible food, and composting, as well through waste conversion technologies such as anaerobic digestion and biomass conversion which produce biogas that can be used to produce heat and electricity, pipeline gas, and other beneficial products like compost and fertilizer. At wastewater treatment plants, biogas will be captured and converted into electricity.



Strategy 14: Promote clean manufacturing processes

Collaboration with industries and businesses is essential for accelerating innovation and commercialization of new manufacturing technologies. By shifting the manufacturing industry towards green chemistry and clean manufacturing practices, the County will reduce emissions while providing opportunities for workforce development, leading to cleaner and safer jobs.

Action	Implementation	Co-Benefits
<p>I1: Lead and support a regional green chemistry / clean manufacturing incubator that facilitates linkages between developing businesses and workforce development efforts for target populations.</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Department of Public Works, Department of Workforce Development, Aging and Community Services, Department of Consumer and Business Affairs, Los Angeles County Development Authority, Local colleges and universities</p> <p>Medium-Term</p>	<p>Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p> Enabling Action OurCounty #62</p>	<p>\$\$</p>	

Mitigation Strategies and Actions: Industrial Processes and Product Use



Strategy 15: Substitute emission intensive products

Some products used in households, transportation vehicles and systems, and industrial processes, can have a very high GWP. Refrigerants, foams and solvents, among others use fluorinated gases that are known to be harmful to the environment and have historically been outlawed as newer, better alternatives arise. By incentivizing low to no GWP products, emissions from product use can be reduced and managed.

2025 Target	2035 Target	2045 Target
Reduce HFC emissions by 30% from 2017 baseline	Reduce HFC emissions by 45% from 2017 baseline	Reduce HFC emissions by 60% from 2017 baseline
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
HFC and PFC Substitution 0.5 million MTCO ₂ e	HFC and PFC Substitution 2.0 million MTCO ₂ e	HFC and PFC Substitution 4.2 million MTCO ₂ e

Action	Implementation	Co-Benefits
12: Partner with utilities to incentivize equipment replacement that phases out high GWP refrigerants.	Lead: Chief Executive Office Medium-Term \$	Strong and Diverse Economy; Natural Resources Management; Healthy, Livable, and Equitable Communities

 Major Action





Agriculture, Forestry, and Other Land Use

The County will reduce GHG emissions from waste in a manner that prioritizes overall environmental benefit. This starts with expanded efforts to reduce and reuse waste at the source. Incentives and educational programs will be used to increase awareness about and bolster participation in recycling programs. Organic waste, which is responsible for the vast majority of GHG emissions in the waste sector, will be addressed through source reduction, donation of edible food, and composting, as well through waste conversion technologies such as anaerobic digestion and biomass conversion which produce biogas that can be used to produce heat and electricity, pipeline gas, and other beneficial products like compost and fertilizer. At wastewater treatment plants, biogas will be captured and converted into electricity.

Mitigation Strategies and Actions: Agriculture, Forestry, and Other Land Use



Strategy 16: Conserve forests and working lands

Forests, chaparral shrublands, and wetlands serve as carbon sinks that can sequester carbon dioxide that result from human activity. When these natural and working lands are converted to residential and other urbanized uses, that stored carbon dioxide is released into the atmosphere. Conserving and restoring these lands keeps carbon in the ground and provides a multitude of benefits from maintaining biodiversity in Significant Ecological Areas (SEA) to preserving the character of the unincorporated County’s rural areas.

2025 Target	2035 Target	2045 Target
Restore 2,000 acres of forest land Increase urban tree canopy cover by 10%	Restore 4,000 acres of forest land Increase urban tree canopy cover by 15%	Restore 6,000 acres of forest land Increase urban tree canopy cover by 20%
GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
<p>Land Conservation and Reforestation</p> <p>0.5 million MTCO₂e</p> <p>Urban Forestry</p> <p>0.01 million MTCO₂e</p>	<p>Land Conservation and Reforestation</p> <p>1.2 million MTCO₂e</p> <p>Urban Forestry</p> <p>0.04 million MTCO₂e</p>	<p>Land Conservation and Reforestation</p> <p>2.2 million MTCO₂e</p> <p>Urban Forestry</p> <p>0.08 million MTCO₂e</p>

Action	Implementation	Co-Benefits
<p>A1: Support the preservation of agricultural and working lands, including rangelands, and restore forest lands, by limiting the conversion of these lands to residential or other uses through tools such as the creation of agricultural easements, particularly within high climate-hazard areas and SEAs.</p> <p> Minor Action OurCounty #47</p> <p> Adaptation Action</p>	<p>Lead: Department of Regional Planning</p> <p>Partners: Department of Parks and Recreation, Los Angeles County Fire Department</p> <p>Short-Term</p> <p>\$</p>	<p>Smart Growth; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>



Mitigation Strategies and Actions: Agriculture, Forestry, and Other Land Use

Action	Implementation	Co-Benefits
<p>A2: Create and implement a community-informed Urban Forest Management Plan that incorporates equitable urban forest practices, identifies County funding sources, and prioritizes: 1. Tree- and park-poor communities; 2. Climate and watershed-appropriate and drought/pest-resistant vegetation; 3. Appropriate watering, maintenance, and disposal practices; 4. Shading, and; 5. Biodiversity.</p> <p> Enabling Action OurCounty #43</p> <p> Adaptation Action</p>	<p>Lead: Chief Executive Office</p> <p>Partners: California Department of Forestry and Fire Protection, Department of Beaches and Harbors, Department of Public Health, Department of Parks and Recreation, Department of Regional Planning, Los Angeles County Fire Department, Los Angeles County Sheriff's Department, Department of Public Works</p> <p>Short-Term</p> <p>\$\$\$\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>A3: Continue and expand County tree planting to increase the urban forest in both the public right of way and on private property.</p> <p> Minor Action  Adaptation Action</p>	<p>Lead: Department of Public Works, Department of Public Health</p> <p>Short-Term</p> <p>\$\$\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>
<p>A4: Support the use of public and private land for urban and peri-urban agriculture, such as community gardens, by measures such as identifying available public parcels, streamlining permitting and leasing processes, and incentivizing the conversion of vacant property to agricultural use.</p> <p> Minor Action OurCounty #130</p>	<p>Lead: Chief Executive Office</p> <p>Partners: Los Angeles County Development Authority, Department of Parks and Recreation, Department of Regional Planning, Internal Services Department, Department of Public Works</p> <p>Short-Term</p> <p>\$\$</p>	<p>Smart Growth; Community Services; Natural Resources Management; Healthy, Livable, and Equitable Communities</p>

Mitigation Strategies and Actions: Agriculture, Forestry, and Other Land Use



Strategy 17: Promote regenerative agricultural practices

Agricultural practices can either strip the environment of its rich resources or work to maintain and utilize the resources in ways that benefit farms and the environment. Farming practices that increase biodiversity, enrich soils, improve watersheds, and enhance ecosystem services, are known as regenerative agriculture practices. These practices can have positive impacts for the climate, reducing GHG emissions and supporting practices that are environmentally friendly.

GHG Mitigation Potential 2015-2025	GHG Mitigation Potential 2015-2035	GHG Mitigation Potential 2015-2045
Regenerative Agricultural Practices 0.004 million MTCO ₂ e	Regenerative Agricultural Practices 0.02 million MTCO ₂ e	Regenerative Agricultural Practices 0.04 million MTCO ₂ e

Action	Implementation	Co-Benefits
A5: Reduce the use of synthetic fertilizers through precision agriculture and promote efficient use of compost and manure.	Lead: Department of Agricultural Commissioner/Weights and Measures Medium-Term \$	Smart Growth; Healthy, Livable, and Equitable Communities
A6: Create fallow and field resting incentives to reduce bare-fallow land by adding cover crops and promoting crop rotation for active agricultural sites to improve soil quality, limit risks of nutrient erosion, pollutant run-off and yield reduction.	Lead: Department of Agricultural Commissioner/Weights and Measures Medium-Term \$	Smart Growth; Healthy, Livable, and Equitable Communities
Minor Action Enabling Action Adaptation Action		

Mitigation Strategies and Actions

Mitigation Pathways

The mitigation strategies and actions discussed above provide a comprehensive approach to reduce GHG emissions generated by community activities in the County. Emissions reduction achieved from CAP strategies are summarized in Figure 9. The mitigation pathways reflect emissions reduction from major and minor actions but do not quantify enabling actions. Further information about emissions reduction quantification methodology is provided in Appendix B.

Implementation efforts will focus on the next five years and staying on course with meeting longer term targets. The strategies and actions in this plan will be reassessed when the CAP is next updated in five years. The following chapter provides additional detail on implementation and monitoring efforts.

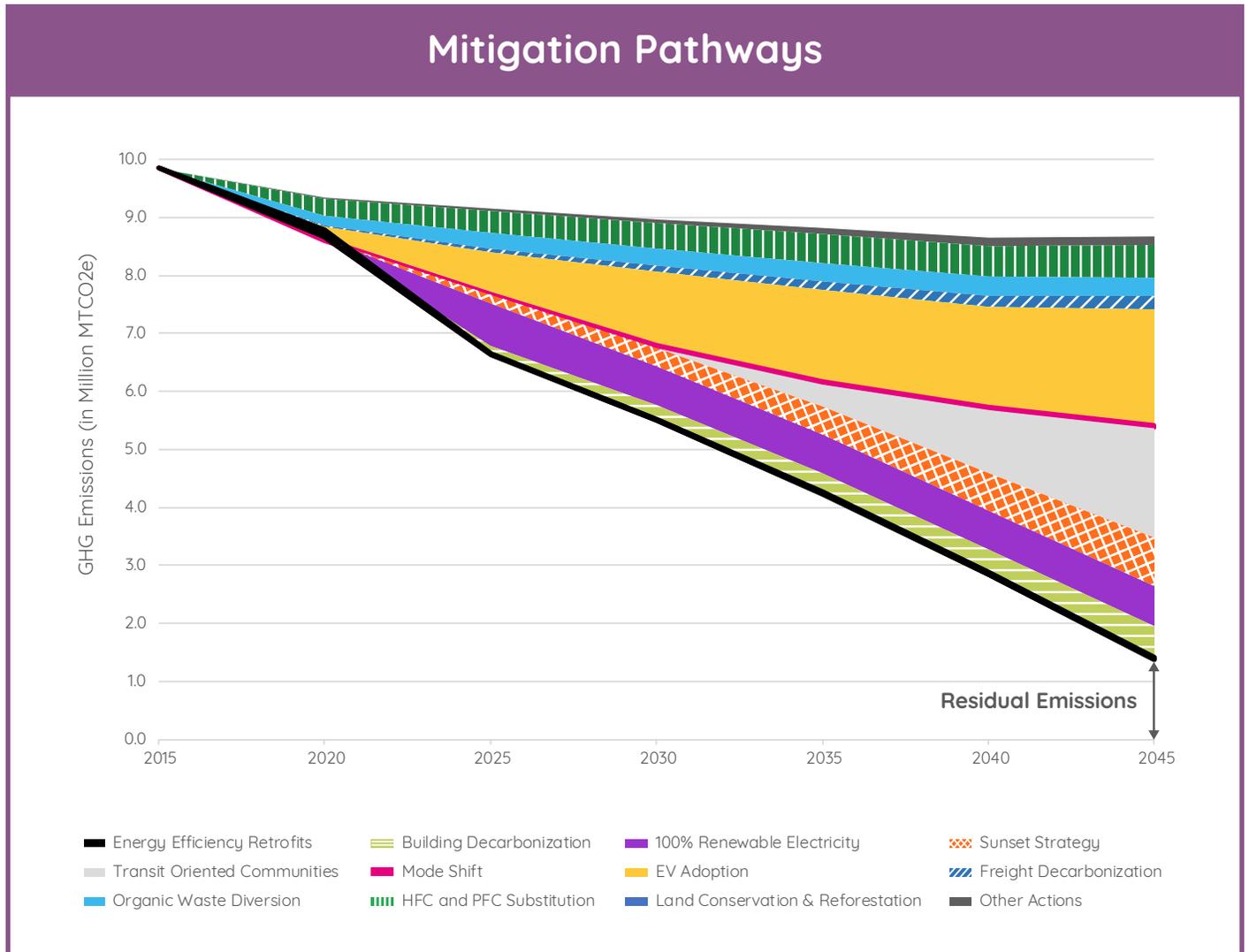


Figure 9: Mitigation Pathways



4. Implementation and Monitoring

4.1 Implementation Plan

Reaching and maintaining carbon neutrality will require bold action at an accelerated pace of implementation. Everyone has a role to play in shaping a healthy, sustainable, and climate resilient future. Implementing CAP strategies and actions will require coordination across County departments, collaboration with community partners and residents, identifying funding opportunities, and integrating it into County processes.

In implementing the climate actions in this CAP, the County will work with local stakeholders to consider the urban/rural conditions. Some climate actions will be appropriate countywide, while others may require additional design considerations for successful implementation. To ensure successful implementation of this plan, the CEO and DRP will take action on the following strategic steps:

1. Create a CAP Implementation Team

The CEO and DRP will develop a cross-departmental CAP implementation team to include representatives from County departments listed as lead or partner agencies of the CAP actions. The team will help County departments remove obstacles in carrying out listed actions, identifying funding, and tracking annual progress.

2. Build partnerships to facilitate the implementation of strategies and actions

Partnerships and collaborations are critical to successful implementation. Partners are listed in many of the CAP actions and the County seeks to continue to build additional partnerships and engage with stakeholders on an ongoing basis.

3. Monitoring and Reporting

The CAP Implementation Team will be responsible for annual progress reports of the status of the strategies and actions. At minimum, this status report will be showcased within the General Plan Annual Progress Report. More information regarding this step is listed under section 4.2.

4. Equity

Implementation efforts will continue to take equity into consideration, in line with the County's Equitable Development Work Program which includes tools to allow County residents at all income levels to benefit from growth and development.

5. Identification of funding sources

Successful implementation will require a commitment of resources and the pursuit of additional funding sources. Funding efforts will include:

- **Grant opportunities:** Given the State's leadership on setting climate reduction targets and in creating the cap-and-trade program, there are numerous grant opportunities offered by different state agencies. Through the Healthy Design Workgroup Grants Committee, the County will continue to review and consider grant opportunities to identify additional funding that support climate action implementation.
- **OurCounty Sustainability Plan Implementation:** The OurCounty Sustainability Plan implementation includes a prioritization and budgeting process. As many of the CAP actions are from the Sustainability Plan, the funding dedicated to

implementation of the Sustainability Plan will by default also contribute some resources to moving a number of the CAP strategies and actions forward.

- **State, regional, and utility programs and incentives:** The County will continue to encourage residents and businesses to participate in incentives that promote energy efficiency, water conservation, and EV adoption.

4.2 Monitoring and Reporting

Update GHG Inventory and CAP every five years

The CAP is a dynamic document that will be monitored and evaluated for effectiveness on an ongoing basis. Monitoring allows the County to make timely adjustments to implementing actions as technologies, federal and State programs, and circumstances change. Flexibility in implementation is necessary to allow the County to evolve its strategies. The County will update the CAP every five years based on findings from annual monitoring reports and GHG emissions inventory updates. A community-wide emissions inventory for the County will be conducted, at minimum, every five years.

Develop a tracking and monitoring system

The County will report on implementation progress on an annual basis as part of the General Plan Progress Reports. In the first two years of implementation, the County will initiate data tracking to track progress and identify where further efforts and additional resources may be needed over time. In this initial phase, the CAP Implementation team will identify data sources

needed in order to report on effectiveness of strategies implemented. A report summarizing ongoing monitoring and status of action implementation will be presented to the County’s Regional Planning Commission and Board of Supervisors annually. A reporting template will be created to facilitate ongoing monitoring and annual progress reports across multiple departments.

Tracking the indicators in Table 6 will assist the County in monitoring the community’s progress in meeting climate strategies and goals. Many of these indicators will be tracked by the CEO as part of the OurCounty Sustainability Plan implementation or are reported by State or County agencies. The list of indicators will be assessed and revised periodically based on data availability and data collection feasibility.

Implementation and Monitoring

4.3 Stakeholder Engagement

The County convened stakeholders to contribute input on the targets, strategies, and actions within the CAP through a variety of engagement methods. The OurCounty Sustainability Plan, which was developed between November 2017 and August 2019, included a proactive dialogue with community stakeholders about which sustainability issues to address and how to address them. Community-based organizations played a central role in uplifting equity discussions, both by participating in the design and facilitation of events as well as by ensuring that discussions were inclusive of the perspectives of low-income communities of color. While the scope of the OurCounty Sustainability Plan is broader than the CAP, pertinent discussions and recommendations around climate change mitigation for unincorporated areas have been incorporated into the CAP.

One of the primary methods for collecting input on the OurCounty Sustainability Plan was a series of eleven topic-based stakeholder workshops, which included sessions on climate and energy, transportation, waste, landscapes and ecosystems, and equity and resilience. The workshops featured presentations of draft goals and strategies for discussion and debate and drew nearly 600 attendees from nearly 300 organizations.

The County later presented a “Discussion Draft” to the same audience through two Draft Review Sessions and presented the Discussion Draft to the general public through a series of five environmental fairs. Dubbed “Our Voice, Our County,” the fairs were co-organized by the Liberty Hill Foundation and community-based organizations in each of the five Supervisorial Districts. Finally, the County made a series of presentations to business, civic, and community organizations. A detailed summary of stakeholder engagement activities is available for download at [OurCountyLA.org](https://www.lacounty.gov/our-county).

The County also followed up with additional engagement activities specific to the CAP. The County organized a dedicated stakeholder workshop in November 2019, where County staff and consultants presented the planning framework and findings from the GHG inventory. The County facilitated topic-based discussions around energy, buildings, transportation, and sequestration. County staff also shared information and discussed the CAP by establishing a dedicated website at planning.lacounty.gov/site/climate, collecting input via online survey, tabling at Parks After Dark events, and presenting about the CAP during events for other County projects such as the East San Gabriel Valley Area Plan.



Table 6: Indicators for monitoring CAP progress

Strategy	Indicators
Strategy 1: Lead by example towards carbon neutrality	<ul style="list-style-type: none"> • GHG emissions
Strategy 2: Promote transit oriented communities	<ul style="list-style-type: none"> • Commute mode share • Population residing within HQTAs • Jobs located within HQTAs • Daily VMT
Strategy 3: Reduce single occupancy vehicle trips	<ul style="list-style-type: none"> • Commute mode share • Collisions involving pedestrians or bicyclists
Strategy 4: Institutionalize low-carbon transportation	<ul style="list-style-type: none"> • EV, ZEV and near-zero-emission vehicle (NZEV) registrations for medium- and heavy-duty vehicles, including transit fleets • Number of Public EVCS
Strategy 5: Accelerate freight electrification	<ul style="list-style-type: none"> • Permits for charging and fueling infrastructure for medium- and heavy-duty vehicles
Strategy 6: Explore zero emissions technologies for off-road vehicles and equipment	<ul style="list-style-type: none"> • Off-road equipment registrations • Diesel retrofit verification program registrations
Strategy 7: Decarbonize building energy use	<ul style="list-style-type: none"> • Building energy use by sector • Total consumption of electricity and natural gas • Number of new buildings that meet 2019 Title 24 requirements • Number of buildings and homes retrofitted
Strategy 8: Promote water conservation	<ul style="list-style-type: none"> • Per capita water consumption • Number of buildings and homes retrofitted with water efficient devices
Strategy 9: Increase energy resilience	<ul style="list-style-type: none"> • Installed DER capacity • Number of DER projects
Strategy 10: Increase renewable energy	<ul style="list-style-type: none"> • Renewable energy portfolio (percent share) • Grid emission factor • Installed DER capacity • Solar thermal and PV installation in buildings and facilities
Strategy 11: Introduce incentive-based systems to reduce waste	<ul style="list-style-type: none"> • See Strategy 12
Strategy 12: Generate widespread support for sustainable waste future	<ul style="list-style-type: none"> • Annual waste tons to landfill • Landfill diversion rate

Implementation and Monitoring

Strategy 13: Reduce and divert organic waste	<ul style="list-style-type: none"> Organic waste diversion rate Annual quantity of organic waste treated in composting and anaerobic digestion facilities Reported GHG Emissions from waste to energy facilities
Strategy 14: Promote clean manufacturing	<ul style="list-style-type: none"> N/A
Strategy 15: Substitute emission intensive products	<ul style="list-style-type: none"> N/A
Strategy 16: Conserve forests and working lands	<ul style="list-style-type: none"> Acres of forest land restored Urban tree canopy area
Strategy 17: Promote regenerative agricultural practices	<ul style="list-style-type: none"> N/A

You've found a butterfly!
Here's how to identify it:

What shapes and sizes do you see?

What colors



**BUTTERFLY
PAVILION GU**

GHG Accounting and Projections

A.1 2015 GHG Emissions Inventory

The 2015 GHG inventory for unincorporated Los Angeles County is a GPC compliant inventory which accounts for community-wide GHG emissions in line with 2006 IPCC guidelines for National Greenhouse Gas Inventories. Under the GPC protocol, CO₂ equivalents are reported from seven GHGs. These gases include biogenic and non-biogenic carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). These gases are measured based on activity data and can be reported using the Scopes Framework or the City-induced Framework, and grouped into five sectors: Transportation, Stationary Energy, Waste, Industrial Processes and Product Use (IPPU), and Agriculture, Forestry and Other Land Use (AFOLU).

Scopes Framework

The scopes framework captures GHG emissions produced within a geographic boundary by categorizing emissions into three scopes:

- Scope 1: emissions from in-boundary or territorial sources
- Scope 2: emissions from grid-supplied energy sources
- Scope 3: emissions from out-of-boundary sources

City-Induced Framework

The city-induced framework measures GHG emissions attributable to activities occurring within a geographic boundary and covers selected scope 1, 2 and 3

sources. The BASIC reporting level includes emissions from Transportation, Stationary Energy, and Waste Sectors. The BASIC+ reporting levels includes all BASIC requirements as well as emissions from Transmission and Distribution Grid Losses, Transboundary Transportation, In-Boundary Generated Waste emission sources, IPPU, and AFOLU.

The 2015 GHG emissions inventory for unincorporated Los Angeles County is adapted from the 2015 Community GHG Inventory Methodology and Summary Report prepared for the OurCounty Sustainability Plan. The 2015 GHG emissions inventory utilizes city-induced framework with BASIC+ reporting to report emissions from 88 cities and unincorporated areas. Emission factors used in this inventory are compliant with those used by IPCC, CARB, and EPA. The inventory adopts GWP values from the IPCC Fifth Assessment Report (AR5)* to estimate GHG emissions for the following sectors:

- **Transportation:** The Transportation sector includes emissions from fuel and electricity consumption in on-road vehicles (cars, light-, medium-, and heavy-duty trucks), off-road vehicles, and rail systems.

Emissions from passenger vehicles (cars, light- and medium-duty trucks) and heavy-duty trucks are estimated based on vehicle miles travelled and trip forecasts. Emissions from trips that begin and end within unincorporated County are reported under Scope 1 and emissions from trips that either originate or terminate within unincorporated boundaries are reported under Scope 3.

Emissions from off-road vehicles used in agricultural facilities are reported under Scope 1 but accounted under the Stationary Energy Sector.

* For some sub-categories, GHG emissions are accounted directly from Federal and State emissions reporting databases. If these databases do not comply with the latest GWP values and do not provide relevant activity level data to re-evaluate carbon dioxide equivalents as per AR5 GWP values, then GHG emissions for those sub-categories are accounted as they were reported in the database.

Emissions from Metro and Metrolink rail systems are estimated based on diesel and electricity consumption and are reported under Scope 1. Finally, grid emissions from electric vehicles, buses, and rail systems are reported under Scope 2 and emissions from transmission and distribution losses are reported under Scope 3.

- **Stationary Energy:** This sector includes emissions from energy (natural gas and electricity) use in Residential, Commercial/Institutional, and Manufacturing/Industrial Buildings, energy generation facilities, and stationary (off-road) equipment.

Emissions from electricity and natural gas consumption are estimated based on building account level data. Emissions from natural gas consumption (SoCal gas) are accounted under Scope 1 and emissions from electricity consumption (SCE) in buildings and grid losses are classified as Scope 2 and 3 respectively.

Emissions from off-road equipment and off-road vehicles used in agricultural facilities are accounted under Scope 1.”

Emissions from fossil fuel combustion at energy generation facilities, fossil fuel extraction operations, and fugitive emissions released from oil and natural gas systems are reported under Scope 1.

- **Waste:** Emissions generated at landfills, biological treatment (composting and anaerobic digestion) and incineration facilities, and wastewater treatment plants are reported under the waste sector. Landfill related emissions are estimated using the first order of decay model, based on waste disposed by unincorporated communities and in- and out-of county landfills between 1998 and 2015. Emissions from biological treatment and incineration facilities are estimated based on waste volume diverted by

transfer stations to in- and out-of county facilities. Emissions from in-county landfills and facilities are reported under Scope 1 and emissions from out-of-county landfills and facilities are reported under Scope 3.

Emissions from wastewater treatment are estimated based on population served by sewer and septic systems in unincorporated areas. These emissions are reported under Scope 1 as it is not possible to distinguish between wastewater treated in and outside the unincorporated community boundary.

Emissions associated with methane flaring and recovery from landfills and anaerobic digestion units (used for waste and wastewater management) are deducted. If the methane is flared, then the emissions are reported under the Waste sector. However, if the methane is recovered (biogas or digester gas) and used for electricity generation, then the emissions are reported under the Stationary Energy sector.

- **AFOLU:** AFOLU sector accounts for emissions and removals from land-related emissions, including agriculture, forestry, and aggregate sources (including wildfires, biomass burning, and fertilizer use). Emissions and removals (sequestration) from natural forests is determined based on 2015 and 2016 land acreage data and sequestration from urban forests is determined based on 2016 County-level tree canopy. Emissions from wildfire and biomass burning generated (post-harvest agricultural burning), and fertilizer use (including liming, urea, organic and synthetic fertilizer) are reported under aggregate sources. All AFOLU emissions are reported under Scope 1.

The OurCounty Sustainability Plan, 2015 emissions from the aforementioned sectors in unincorporated areas were 9.5 Million MTCO₂e. In addition to these sectors, the CAP accounts for emissions from additional community

** Due to data limitations, emissions from off-road vehicles and off-road stationary equipment are collectively reported under the Manufacturing and Construction Buildings and Agriculture, Forestry, and Other Fishing Activities under the Stationary Energy sector.

Appendix A: GHG Accounting and Projections

activities in 2015, thus reporting 9.6 Million MTCO₂e, as shown in Table 7. These additional sub-categories include:

- **Manufacturing and Construction Equipment:** In the OurCounty Sustainability Plan, GHG emissions from construction, mining and industrial equipment are estimated using CARB's OFFROAD2017 ORION tool. This tool provides daily carbon dioxide emissions and annual fuel consumption of diesel, gasoline and natural gas in off-road equipment and vehicles used in the manufacturing and construction sectors.

In the OurCounty Sustainability Plan emissions from manufacturing and construction equipment are not disaggregated by city and therefore not reported for unincorporated communities. In the CAP countywide emissions from unincorporated Los Angeles County are estimated by scaling countywide GHG emissions based on the number of jobs in manufacturing and construction sectors in unincorporated areas between 2010 and 2017. These emissions are accounted under Scope 1 and reported under the Stationary Energy Sector.

- **Buses:** In the OurCounty Sustainability Plan, GHG emissions from fuel and energy consumption by bus transit systems and paratransit agencies are accounted from Federal Transit Administration's National Transit database. Emission factors for gasoline, diesel and compressed natural gas-powered buses are taken from EMFAC database to calculate carbon dioxide and nitrous oxide emissions. Emission factors for liquefied petroleum gas and biomethane fueled buses are documented from EPA GHG inventory. Emissions from electric battery buses are estimated based on grid emission

factors for utilities operational in respective cities. In the OurCounty Sustainability Plan, emissions from Los Angeles County Metropolitan Transportation Authority (LACMTA) small operators (including buses and paratransit services) are not accounted by jurisdiction and therefore not reported for unincorporated communities. In the CAP, 50 percent of countywide emissions from LACMTA small operators are reported under unincorporated Los Angeles County. These emissions are accounted under Scope 1.

- **Product Use:** In the OurCounty Sustainability Plan, HFC and PFC emissions from products such as refrigerants, foams, aerosols, and fossil fuel-based lubricants and solvents are estimated by scaling statewide emissions from product use. GHG emissions from product use in residential, commercial, and transportation sector, are scaled based on population and are accounted by jurisdiction. State-level emissions from product use in industries including electronics, food processing, metal and machinery manufacturing, among others, are scaled based on State and County industry output from respective industries. In the OurCounty Sustainability Plan, emissions from industrial product use are not accounted by jurisdiction and therefore not reported for unincorporated communities. In the CAP however, emissions from industrial sector are scaled based on population in unincorporated Los Angeles County. These emissions are accounted under Scope 1.

Table 7: 2015 GHG Emissions Inventory for Unincorporated Los Angeles by sub-category (in MTCO₂e)

Sector/Sub-sector/Sub-category	GHG Emissions ⁺
Transportation	6,171,940
On-road Transportation	6,135,369
Passenger Vehicles	4,713,399
Trucks	1,404,940
Buses*	44,189
Railways	9,413
Stationary Energy	3,022,779
Residential Buildings	1,030,285
Natural Gas	531,028
Single Family	354,607
Multifamily & Condo	96,895
Residential Other	62,793
Electricity	499,257
Single Family	354,820
Multifamily & Condo	96,895
Residential Other	47,542
Commercial and Institutional Buildings	386,753
Natural Gas	96,639
Single Family	86,229
Multifamily & Condo	10,409
Residential Other	290,115
Electricity	178,058
Single Family	112,057
Multifamily & Condo	309,449
Residential Other	91,215
Manufacturing and Construction Buildings	168,470
Natural Gas	21,096
Electricity	28,668
Construction and Mining Equipment*	1,030,285
Industrial Equipment*	531,028
Energy Industries	1,235,395

Appendix A: GHG Accounting and Projections

Agriculture, Forestry and Other Fishing Activities	2,675
Fugitive Emissions from Oil and Natural Gas Systems	58,222
Waste	469,997
Solid Waste Disposal	404,604
Biological Treatment of Solid Waste	10,214
Waste Incineration	1,184
Wastewater Treatment	55,179
IPPU	253,529
Product Use*	253,529
Aerosols and Fire Retardants	20,018
Residential and Transportation Refrigeration and Air Conditioning	179,274
Foam Use	5,412
Industrial Refrigeration and Air Conditioning	41,151
Solvents (Non-Aerosol) Use	7,674
AFOLU	-313,906
Land and Land-Use Change	-338,954
Natural Forests	-314,880
Urban Forests	-24,075
Aggregate Sources and Non-CO ₂ Emission Sources	25,048
Total	9,604,339

Notes:

+ Values may not sum up due to rounding.

* Includes select sub-categories that were not reported in the OurCounty Sustainability Plan.

Note: For a more detailed description of the GHG accounting methodology please review the 2015 Community GHG Inventory Methodology and Summary Report that is provided with the CAP Draft.

A.2 2010 GHG Inventory and Backcasting Methodology

In 2010, the Los Angeles Regional Collaborative (LARC) and ICF International created a GHG emissions inventory for Los Angeles County using the ICLEI US Community Protocol. The 2010 inventory accounted for Scope 1 and 2 emissions using AR4 GWP values. Additionally, Scope 3 emissions were estimated for additional sub-categories—including water conveyance, and water supply, treatment and distribution—that are not accounted in the 2015 GHG inventory. The 2015 GHG emissions inventory methodology follows the GPC protocol, which superseded the ICLEI US Community Protocol in December 2014. The 2015 inventory includes GHG emissions from industrial processes, product use, fugitive emissions from oil and natural gas systems, and other aggregate carbon dioxide sources that were not included in the 2010 inventory. Table 8 shows the differences in sub-sectors included in the two protocols and respective inventories.

Due to differences in GHG protocols and accounting methodologies, it is not possible to directly compare emissions from each sub-sector. To monitor emissions reduction between 2010 and 2015 and to ensure consistency with previous commitments (dating back to 1990), GPC protocol was used to develop a backcasting model for unincorporated areas. GHG emissions from each sector and sub-sector were scaled from 2015 to 1990 by using County and State parameters and datasets discussed in Table 9. Using the backcasting model, it is estimated

Appendix A: GHG Accounting and Projections

Table 8: Sectors and sub-sectors in ICLEI and GPC Protocol

ICLEI US Community Protocol Used for 2010 Inventory	GPC Protocol Used for 2015 Inventory
<ul style="list-style-type: none"> • Transportation: <ul style="list-style-type: none"> • On-Road Transportation • Off-Road Transportation and Equipment • Ports of Los Angeles (POLA) • Los Angeles World Airports (LAWA) 	<ul style="list-style-type: none"> • Transportation: <ul style="list-style-type: none"> • On-Road Transportation • Off-Road Transportation • Ports (including POLA) • Aviation (including LAWA)
<ul style="list-style-type: none"> • Building Energy • Stationary Sources 	<ul style="list-style-type: none"> • Stationary Energy: <ul style="list-style-type: none"> • Buildings • Energy Industries • Agriculture, Forestry and Other Fishing Activities • Fugitive Emissions from Oil and Natural Gas Systems
<ul style="list-style-type: none"> • Solid Waste • Waste Water Treatment 	<ul style="list-style-type: none"> • Waste: <ul style="list-style-type: none"> • Solid Waste • Biological Treatment of Solid Waste • Waste Incineration • Wastewater Treatment
<ul style="list-style-type: none"> • Agriculture (Including Livestock Management) • Urban and Natural Forest (For Informational Purposes Only) 	<ul style="list-style-type: none"> • AFOLU: <ul style="list-style-type: none"> • Land and Land-Use Change (Including Urban and Natural Forests) • Aggregate Sources and Non-CO2 Emission Sources
<ul style="list-style-type: none"> • Water Conveyance • Water Supply, Distribution and Treatment (For Informational Purposes Only) 	<ul style="list-style-type: none"> • IPPU: <ul style="list-style-type: none"> • Product Use

GHG Emission Trends

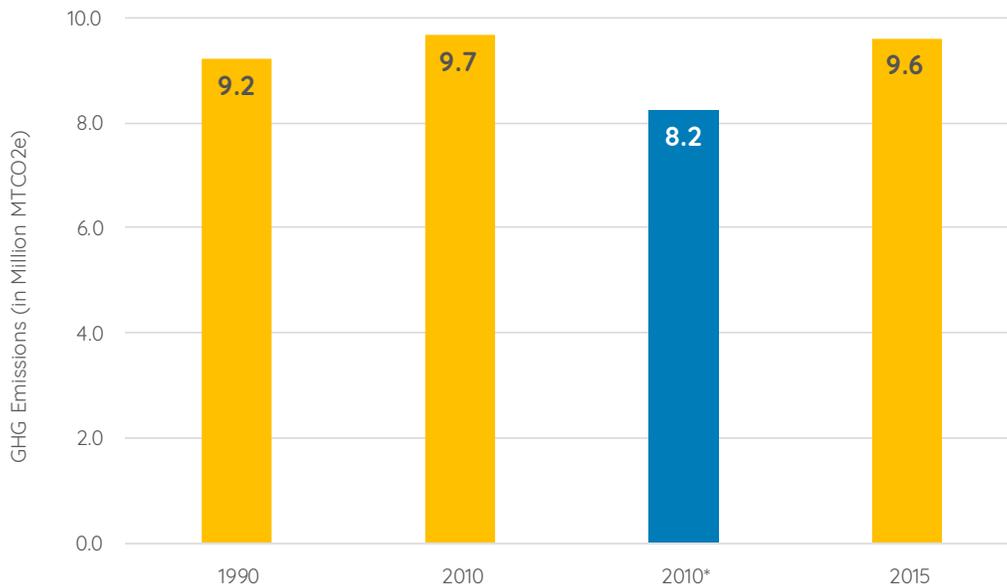


Figure 10: GHG Emission Trends from 1990 to 2015

Per Capita GHG Emission Trends

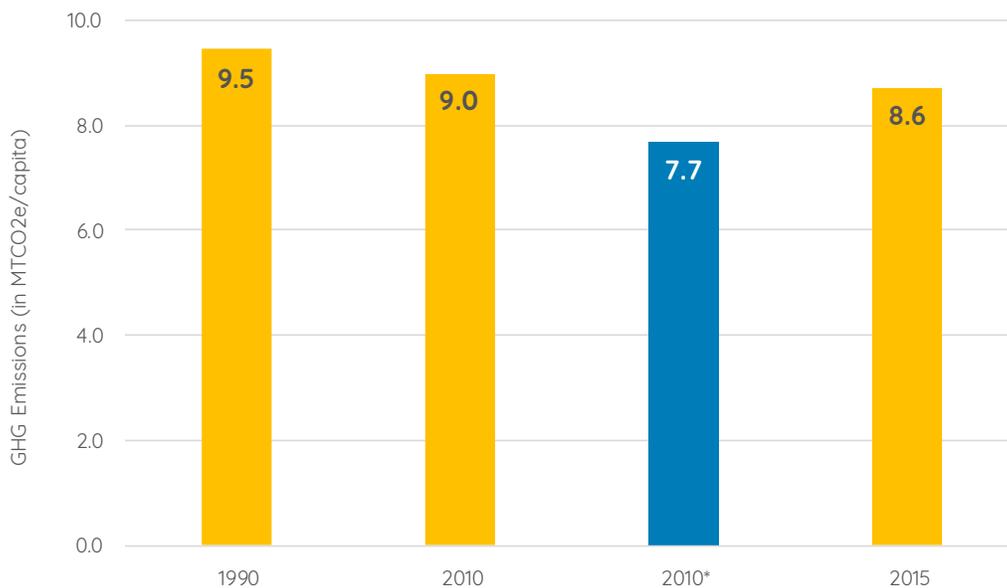


Figure 10: GHG Emission Trends from 1990 to 2015

Notes:

* 2010 GHG emissions Inventory reported in unincorporated Los Angeles County 2020 CCAP

Appendix A: GHG Accounting and Projections

Table 9: Assumptions for backcasting GHG emissions to 1990

Sector/Sub-sector	Backcasting Parameters
Transportation	
On-road Transportation	Emissions from on-road vehicles are estimated using VMT in unincorporated Los Angeles County as reported in Caltrans Public Road Data from 1990 to 2014. ¹⁴
Railways	GHG emissions are assumed to be constant from 1990 to 2015.
Stationary Energy	
Residential Buildings	Emissions from energy use in residential buildings are backcasted based on Countywide residential natural gas and electricity consumption as reported by CEC from 1990 to 2014. ¹⁵
Commercial and Institutional Buildings	Emissions from energy use in commercial buildings are backcasted based on Countywide non-residential natural gas and electricity consumption as reported by CEC from 1990 to 2014. ¹⁶
Manufacturing and Construction Buildings	
Buildings	Emissions from energy use in commercial buildings are backcasted based on Countywide non-residential natural gas and electricity consumption as reported by CEC from 1990 to 2014. ¹⁷
Equipment	a. 2015 emissions from stationary equipment are scaled down using countywide GHG emissions based on construction and manufacturing jobs in unincorporated Los Angeles County. ¹⁸ b. GHG emissions are assumed to be constant from 1990 to 2015.
Energy Industries	GHG emissions are assumed to be constant from 1990 to 2015.
Agriculture, Forestry and Other Fishing Activities	GHG emissions are assumed to be constant from 1990 to 2015.
Fugitive Emissions from Oil and Natural Gas Systems	GHG emissions are assumed to be constant from 1990 to 2015.
Waste	
Solid Waste Disposal	a. Emissions from organic waste disposal between 2010 and 2014 are scaled based on waste disposal tonnage reported by PW's SWIMS database. ¹⁹ b. GHG emissions from 1990 to 2009 are backcasted based on population. ²⁰
Biological Treatment of Solid Waste	a. Emissions from biological treatment between 2010 and 2014 are scaled based on waste disposal tonnage reported by PW's SWIMS database. ²¹ b. GHG emissions from 1990 to 2009 are backcasted based on population. ²²

Waste Incineration	GHG emissions are assumed to be constant from 1990 to 2015.
IPPU	
Product Use	GHG emissions from 1990 to 2014 are backcasted based on population. ²³
AFOLU	
Land and Land-use Change	
Natural Forests	<p>a. CO2 sequestration from forest land between 2007 and 2014 is scaled based on forest land area reported by National Agricultural Statistical Service (NASS) CropScape tool, which is managed by the United States Department of Agriculture (USDA).²⁴</p> <p>b. GHG emissions are assumed to be constant from 1990 to 2006.</p>
Urban Forests	Carbon dioxide sequestration from urban forests is assumed to be constant from 1990 to 2015.
Aggregate sources and non-CO2 emissions sources	GHG emissions are assumed to be constant from 1990 to 2015

Appendix B: Emissions Forecasting Methodology

Emissions Forecasting Methodology

B.1 Assumptions for Adjusted for BAU Scenario

Table 10: Assumption for forecasting GHG emissions to 2045 under the Adjusted BAU Scenario

Sector/Sub-sector	Forecasting Parameters
Transportation	
On-road Transportation	
Passenger Vehicles and Trucks	<p data-bbox="561 667 1503 1014">GHG emission projections from passenger vehicles are estimated using the Southern SCAG’s Regional Travel Demand Model, which builds on CARB’s EMFAC model. Using SCAG’s model, daily VMT by cars, light trucks, medium duty trucks, heavy-duty trucks, and transit vehicles are determined using a trip-based travel forecasting model. Trip-based travel forecasting models generates daily vehicle trips for each traffic analysis zone across various trip purposes based on inputs such as the transportation network and socioeconomic data such as population, household, and employment, until 2040.²⁵</p> <p data-bbox="561 1052 1503 1276">Emission factors are obtained using CARB’s EMFAC 2040 model for the corresponding SCAG year. The EMFAC 2040 model projects substantially lower emissions compared to the 2016 model, resulting from a comprehensive strategy at the State level to attain federal health-based air quality standards for ozone in 2023 and 2031 in the South Coast, and fine PM in the next decade. These standards include:</p> <ul data-bbox="561 1314 1503 1814" style="list-style-type: none"> <li data-bbox="561 1314 1503 1461">• Achieving GHG emissions reduction targets of 40 percent below 1990 levels by 2030, and an 80 percent reduction by 2050, minimizing health risks from exposure to toxic air contaminants, reducing petroleum use by 50 percent by 2030, and increasing energy efficiency. <li data-bbox="561 1486 1503 1556">• Reducing smog-forming emissions by 80 percent, and a 45 percent reduction in diesel PM emissions in the South Coast. <li data-bbox="561 1581 1503 1692">• Increasing the penetration of ZEV and NZEVs by over 50 percent compared to current programs, as well as increasing renewable energy supply for supporting EVs and ZEVs to 50 percent. <li data-bbox="561 1717 1503 1814">• Imposing stricter standards for heavy-duty vehicles, including internal combustion engines that are 90 percent cleaner, and use renewable fuels, and zero-emission technology.

	<ul style="list-style-type: none"> Increasing sales of ZEV and NZEVs to reach 40 percent of all sales by 2030 and 100 percent by 2050, as well as increasing penetration of renewable fuels for the remaining combustion vehicles in the fleet <p>GHG emissions from 2016 to 2040 are calculated using VMT and emission factors from the EMFAC model, corresponding to the SCAG model year. Emissions from 2040 to 2045 are extrapolated based on population growth from 2040 to 2045</p>
Buses	<ul style="list-style-type: none"> Emissions from Metro buses are extrapolated based on Metro’s bus miles and ridership statistics between 2010 and 2017.²⁶ GHG emissions from other LACMTA transit services are assumed to be constant from 2015 to 2045.²⁷
Railways	<ul style="list-style-type: none"> Emissions by Southern California Regional Rail Authority (SCRRA or Metrolink) are forecasted based on projected weekday ridership till 2025 as documented in MetroLink’s 10 Year Strategic Plan. Emissions from 2025 to 2045 are extrapolated based ridership estimates between 2014 and 2025.^{28,29} Emissions from Metro Rail are extrapolated based on Metro rail miles and ridership statistics between 2010 and 2017.^{30,31}
Stationary Energy	
Residential Buildings	<ul style="list-style-type: none"> Emission forecasts for energy use in residential buildings are developed using grid (SCE) and natural gas emission factors, and EUI projections for residential stock. EUI projections are based on historical change in building footprint data obtained from the Los Angeles County Assessor Parcel Database (2006-2018).³² EUI projections for residential building stock are disaggregated into seven categories based on housing type and vintage to reflect the impacts of Title 24. These categories include: <ul style="list-style-type: none"> Single-family (pre- and post-1979) Multi-family (pre- and post-1979) Condo (pre- and post-1979) Residential other (includes mobile home parks, manufactured homes, nursing homes, rural residential, and unknown other residential use codes that are not captured in the single-family, multi-family, or condo categories, as well as those residential buildings for which vintage data is unavailable)

Appendix B: Emissions Forecasting Methodology

Commercial and Institutional Buildings	<ul style="list-style-type: none"> Emission forecasts for energy use in commercial and institutional buildings are developed using grid (SCE) and natural gas emission factors, and EUI projections for residential stock. EUI projections are based on historical change in building footprint data obtained from the Los Angeles County Assessor Parcel Database (2006-2018).³³ EUI projections for non-residential building stock are disaggregated into four categories based on building type and vintage to reflect the impacts of Title 24. These categories include: <ul style="list-style-type: none"> Commercial (pre- and post-1979) Commercial other (estimated values for commercial buildings for which vintage data is unavailable) Institutional
Manufacturing and Construction Buildings	
Buildings	<ul style="list-style-type: none"> Emission forecasts for energy use in industrial buildings are developed using grid (SCE) and natural gas emission factors, and EUI projections for residential stock. EUI projections are based on historical change in building footprint data obtained from the Los Angeles County Assessor Parcel Database (2006-2018).³⁴
Equipment	<ul style="list-style-type: none"> Countywide GHG emissions from manufacturing and construction equipment are obtained from CARB's OFFROAD2017 ORION tool. ³⁵ The tool provides countywide carbon dioxide emissions, and annual gasoline and diesel consumption by off-road equipment to 2050. Emission projections for unincorporated Los Angeles are estimated by scaling countywide emissions based on construction and manufacturing jobs.³⁶
Energy Industries	<ul style="list-style-type: none"> Emission projections from energy production at combined heat and power (CHP) plants, district cooling facilities, biomass power stations, waste to energy facilities, and petroleum refining facilities, are extrapolated based on 2008 to 2016 GHG emissions reported by the CARB Pollution Mapping Tool.³⁷ The operational capacity of energy facilities remains unchanged between 2015 and 2045, unless the facilities are scheduled to shut down before 2045.

Agriculture, Forestry and Other Fishing Activities	<ul style="list-style-type: none"> Countywide GHG emissions from manufacturing and construction equipment are obtained from CARB’s OFFROAD2017 ORION tool.³⁸ The tool provides countywide carbon dioxide emissions, and annual gasoline and diesel consumption by off-road equipment to 2050. Emission projections for unincorporated Los Angeles are estimated by scaling countywide emissions based on 2015 crop acreage from USDA’s NASS Cropscape.³⁹
Fugitive Emissions from Oil and Natural Gas Systems	<ul style="list-style-type: none"> Emissions from extraction, processing, and distribution of crude oil and natural gas, are extrapolated based on 2008 to 2016 GHG emissions reported by the CARB Pollution Mapping Tool.⁴⁰
Waste	
Solid Waste Disposal	<ul style="list-style-type: none"> Emissions from landfills are determined by extrapolating 2015 GHG emissions intensity (MTCO₂e/person) based on solid waste and organic waste disposal projections from the PW SWIMS database and population projections by SCAG and CalTrans.^{41,42,43} Solid waste diversion rate is assumed to increase from 65 percent in 2015 to 75 percent by 2020 and remains constant thereafter. Organics diversion rate remains constant at 37 percent.⁴⁴
Biological Treatment of Solid Waste	<ul style="list-style-type: none"> Emissions from composting and anaerobic digestion are estimated by extrapolating 2015 GHG emissions intensity (MTCO₂e/person) based on solid waste and organic waste disposal projections from PW SWIMS database.⁴⁵ Solid waste diversion rate is assumed to increase from 65 percent in 2015 to 75 percent by 2020 and remains constant thereafter. The proportion of organic waste diverted from landfills to composting and grinding/mulching facilities remains constant.⁴⁶
Waste Incineration	See Energy Industries.
Wastewater Treatment	<ul style="list-style-type: none"> Emissions from wastewater treatment are determined by extrapolating 2015 GHG emissions intensity (MTCO₂e/person) based on population projections by SCAG and CalTrans.^{47,48}
IPPU	
Product Use	<ul style="list-style-type: none"> HFC and PFC emissions from the use of ozone depleting substances such as foam, solvents and industrial refrigerants are constant from 2015 to 2045. HFC and PFC emissions from the use of aerosols, fire retardants and refrigerants in residential and transportation sectors are extrapolated based on population projections by SCAG and CalTrans.^{49,50}

Appendix B: Emissions Forecasting Methodology

AFOLU	
Land and Land-Use Change	
Natural Forests	<ul style="list-style-type: none"> Carbon dioxide sequestration from forest land and forest land use conversion are extrapolated from land acreage reported by the USDA NASS CropScape tool between 2007 to 2016.⁵¹
Urban Forests	<ul style="list-style-type: none"> Carbon dioxide sequestration from urban forests is assumed to remain constant from 2015 to 2045.
Aggregate Sources and Non-CO2 Emissions Sources	<ul style="list-style-type: none"> Emissions from select agricultural practices including biomass burning, liming, urea application and fertilizer use (organic and synthetic) are assumed to be constant constant from 2015 to 2045.

B.2 Assumptions for Mitigation Strategies and Actions

The mitigation potential of CAP strategies is modelled based on datasets and reports used for the Adjusted BAU Scenario and interim emission targets established in the CAP. To align with current State and County goals, the targets have been incorporated from the OurCounty Sustainability Plan (2019), Los Angeles Cleantech Incubator (LACI) Transportation Electrification Partnership’s Zero Emissions Roadmap 2.0 (2019), Metro Climate Action and Adaptation Plan (2019) and the Los Angeles County Department of Public Works Roadmap to a Sustainable Waste Management Future (2014).^{52,53,54,55} Table 8 summarizes the assumptions and datasets used for modeling the Carbon Neutrality Scenario.

Table 11: Assumptions for forecasting GHG emissions to 2045 under the Carbon Neutrality Scenario

Strategy	Assumption
Climate Leadership	
Strategy 1: Lead by example towards carbon neutrality	<ul style="list-style-type: none"> Oil and gas operations are retired as a result of the sunset strategy. A steadily declining reduction of 80 percent from energy industries and fugitive emissions starting from 2025 to 2045, with some residual emissions from a small amount of natural gas usage for CHP, ancillary power, and other uses.
Transportation	
Strategy 2: Promote transit oriented communities	<ul style="list-style-type: none"> VMT decrease from 17.8 miles per capita in 2015 to 10 miles per capita in 2045 because of new housing development in HQTAs and reduction in single occupancy trips (see Strategy 3).⁵⁶ As a result of new housing built within 1/2 mile of high frequency transit, it is estimated that population residing within HQTAs increases from 0.3 million in 2015 to 0.6 million by 2045. Daily VMT by individuals residing in HQTAs is 25 percent lower than those in non-HQTA areas.
Strategy 3: Reduce single occupancy vehicle trips	<ul style="list-style-type: none"> 50 percent of all trips by 2045 are taken by public transit and other modes including biking, walking, and micromobility transit. This shift in mode share reduces the dependence on light duty vehicles, thus decreasing single occupancy trips and GHG emissions. Mode shift increases trips and utilization of public transit (rail and bus) and ride sharing services, increasing public transit mode share from 6 percent in 2015 to 22 percent by 2045.⁵⁷

Appendix B: Emissions Forecasting Methodology

<p>Strategy 4: Institutionalize low-carbon transportation</p>	<ul style="list-style-type: none"> • 80 percent of all new all new light-duty vehicle sales by 2028 and 100 percent of all new light duty vehicle sales are EVs or ZEVs.⁵⁸ • GHG emissions from passenger vehicles decrease due to EV market shift, better access to EV charging infrastructure, and 100 percent renewable energy supply (see SE 17). • GHG emissions from transit electrification reduce as Metro electrifies bus and County paratransit vehicle fleets operating within unincorporated areas by 2030. • Emissions from railways decline because: <ul style="list-style-type: none"> • Metrorail uses 100 percent renewable energy supply (see SE 17). • Metrolink’s electrifies commuter rail infrastructure by 2045.⁵⁹
<p>Strategy 5: Accelerate freight decarbonization</p>	<ul style="list-style-type: none"> • 40 percent of all new medium-duty vehicle sales are ZEVs by 2040.⁶⁰ • 5 percent of all heavy-duty truck are electric by 2028 and 10 percent are electric by 2045.
<p>Strategy 6: Explore electric technologies for off-road vehicles and equipment</p>	<ul style="list-style-type: none"> • Diesel off-road equipment and vehicles are replaced with compressed natural gas (50 percent) and electric (50 percent) equipment or vehicles by 2035.
<p>Stationary Energy</p>	
<p>Strategy 7: Decarbonize building energy use</p>	<ul style="list-style-type: none"> • EUI is reduced as a result of grid decarbonization, building carbon intensity limits, energy efficiency ordinances and retrofit programs implemented across the building portfolio. It is estimated that energy efficiency improvements in electric appliances and natural gas systems, in parallel with building electrification and zero net energy interventions decreases energy consumption in existing and new buildings as described below: <ul style="list-style-type: none"> • Residential building EUI decreases from 45 kBtu per square feet to 29 kBtu per square feet by 2045 • Commercial and Institutional building EUI decreases from 108 kBtu per square feet to 54 kBtu per square feet by 2045 • Manufacturing building EUI decreases from 67 kBtu per square feet to 43 kBtu per square feet by 2045 • Natural gas consumption in new and existing buildings declines by 80 percent by 2045 from 2015 due to building electrification and zero net energy construction. This reduction is achieved by replacing space heating, water heating, and cooking appliances in existing residential and commercial buildings and by promoting all-electric new construction.

<p>Strategy 8: Promote water conservation</p>	<ul style="list-style-type: none"> • In 2015, the daily per capita water consumption in Los Angeles County is estimated at 143 gallons, of which 98 gallons is consumed for residential purposes.⁶¹ It is estimated that water consumption is reduced to 85 gallons per capita per day as: <ul style="list-style-type: none"> • Non-residential water consumption decreases by 30 percent by 2045; and • Residential water consumption decreases by 40 percent by 2045. • Water conservation efforts result in emissions reduction from water treatment, supply, and conveyance systems because annual electricity consumption declines from 275 GWh in 2015 to 214 GWh by 2045. Furthermore, emissions from wastewater treatment also decrease as wastewater volume decreases from 101 Million gallons per day in 2015 to 98 Million gallons per day by 2045.
<p>Strategy 9: Increase energy resilience</p>	<ul style="list-style-type: none"> • All DER systems in unincorporated areas are either Solar PV or Solar thermal (see Strategy 10). GHG emissions mitigated from 1 GW DER installation is considered to be behind-the-meter electricity offsets. • Since the electricity supply in unincorporated Los Angeles is assumed to be 100 percent renewable starting in 2025 (see Strategy 10), there are zero GHG emissions associated with grid electricity after 2025, and therefore there is no additional GHG mitigation potential from DERs after 2025.
<p>Strategy 10: Increase renewable energy</p>	<ul style="list-style-type: none"> • 100 percent of the electricity supply in unincorporated Los Angeles is renewable starting in 2025. • 5 percent of the customers opt out of the CPA until the State reaches 100 percent zero-carbon electricity by 2045. This results in emissions reductions from all buildings, manufacturing operations, and transportation systems powered by grid-supplied electricity. • Community solar and on-site PV solar on existing buildings are included either under CPA or 1 GW DER installation (see Strategy 9).
<p>Waste</p>	
<p>Strategy 11: Introduce incentive-based systems to reduce waste</p>	<p>Mitigation potential is not quantified.</p>

Appendix B: Emissions Forecasting Methodology

<p>Strategy 12: Generate widespread support for sustainable waste future</p>	<p>GHG emissions from landfills decrease due to reduction in waste generation, increase in waste diversion, and public awareness. It is estimated improvements in food and green waste collection indirectly increase the organic waste diversion rate from 37 percent in 2015 to 47 percent by 2045. As a result, GHG emissions from landfills are reduced but increase from composting and anaerobic digestion facilities due to increase in organics diversion (See Strategy 13).</p>
<p>Strategy 13: Reduce and divert organic waste</p>	<ul style="list-style-type: none"> • A 95 percent organic waste diversion target will reduce organic disposal tonnage from 0.4 million tons in 2015 to 9,000 tons by 2045. Food and green waste is diverted to composting, anaerobic digestion, and mulching and grinding facilities. • 90 percent of the wastewater is treated at plants with biogas recovery technologies. • Methane recovered from biogas produced by anaerobic digesters (food and sewage sludge) is used for energy production.
<p>IPPU</p>	
<p>Strategy 14: Promote clean manufacturing processes</p>	<p>Mitigation potential is not quantified.</p>
<p>Strategy 15: Substitute emission intensive products</p>	<ul style="list-style-type: none"> • HFC and PFC emissions from products such as aerosols, foams, residential and retail refrigerants, among others prohibited under SB 1383, are phased out over 30 years (from the effective date of prohibition) and are replaced with non-GHG substitutes.⁶² • HFC use in vehicles declines with EV and ZEV adoption from 2015 to 2040.
<p>AFOLU</p>	
<p>Strategy 16: Conserve forests and working lands</p>	<ul style="list-style-type: none"> • Forest land disturbed or converted between 2007 and 2015 is restored and up to 6,000 acres (or 2,400 hectares) of natural forest land is reforested by 2045. Due to increase in natural and urban tree cover, carbon sequestration from forests increases by 21 percent by 2045. • By 2045, urban tree canopy cover increases by 20 percent.
<p>Strategy 17: Promote regenerative agricultural practices</p>	<ul style="list-style-type: none"> • Use of synthetic fertilizer declines by 10 percent between 2015 and 2045.

Short-Lived Climate Pollutants

After carbon dioxide, short-lived climate pollutants such as methane, fluorinated gases, and anthropogenic black carbon are some of humankind's greatest contributions to the global greenhouse effect. The State codified Short-Lived Climate Pollutant Reduction Strategy (SLCP Reduction Strategy) under SB 1383, establishing 2030 goals to reduce methane by 40 percent, HFC gases by 40 percent, and anthropogenic black carbon by 50 percent from 2013 levels.

The SLCP Reduction Strategy outlines efforts to avoid landfill methane emissions by diverting organic waste, recovering methane from landfills, wastewater treatment plants, and dairy farms, and using biogas energy. SB 1383 establishes targets to achieve a 50 percent reduction in the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. The strategy further identifies steps to reduce natural gas leaks from oil and gas infrastructure. The CAP incorporates actions to address methane emissions in Strategy 1, Strategy 12, and Strategy 13.

The SLCP Reduction Strategy identifies measures that are necessary to reduce HFC emissions from refrigerants, aerosols, foam blowing agents, propellants, and other products. To help meet the HFC reduction target, the state issued HFC prohibitions under SB 1013. The prohibitions are specific to end-use and aim to reduce high-GWP HFCs from residential and retail refrigeration, transportation, construction, and industrial sectors. The CAP aligns with HFC prohibitions under Strategy 15 with actions appropriate to its jurisdiction, while recognizing that national and international actions are necessary to address HFC emissions, including those within the unincorporated County.

The 2015 GHG emissions inventory does not include anthropogenic black carbon emissions, as they do not fall under the Kyoto Protocol. The CAP recognizes the importance of limiting black carbon from residential wood combustion and on-off-road diesel engines. These measures include incentivizing net zero energy residences under Strategy 2 and encouraging ZEV and NZEV adoption under Strategy 8 and Strategy 10.

Co-Benefits Assessment

To assess the actions' co-benefits impacts, the analysis includes a consistent set of questions across the actions. Questions are grouped by the County's General Plan "Guiding Principles" and incorporate both the General Plan Guiding Principles and the OurCounty Sustainability Plan Equity and Resilience themes.

SMART GROWTH

"Align housing with jobs and services; and protect and conserve the County's natural and cultural resources, including the character of rural communities."

INTERCONNECTED COMMUNITIES	MOBILITY
<ul style="list-style-type: none">• Could this create jobs near transit and encourage transit-oriented development in urban areas?• Could this improve ease of travel between the County's diverse cities and communities?• Could this contribute to open space, wildlife corridors, or natural resource preservation?	<ul style="list-style-type: none">• Could this expand transit service for all individuals, especially communities without access to high-quality transit services?• Could this increase mobility options and alternatives to single occupancy vehicles?• Could this reduce regional traffic congestion and associated transit delays?

COMMUNITY SERVICES

“Coordinate an equitable sharing of public and private costs associated with providing appropriate community services and infrastructure to meet growth needs.”

SAFETY

- Could this improve fire safety?
- Could this improve safety during commutes while on roadways or taking public transit?
- Could this enhance pedestrian and cyclist safety?
- Could this help meet the Vision Zero goals?

ACCESS

- Could this expand access to walking and biking paths, public transportation, clean energy, affordable housing, health, services, quality jobs, and other benefits?
- Could this increase access to community services including schools, parks, libraries, police and fire services, and waste management?
- Could this improve existing infrastructure or reduce the need to provide new infrastructure such as water and sewer systems, flood protection, utilities, circulation systems, and traffic signalization?
- Could this increase the percentage of population enrolled in social programs?

Appendix C: Co-Benefits Assessment

STRONG AND DIVERSE ECONOMY:

“Protect areas that generate employment and promote programs that support a stable and well-educated workforce for jobs-housing balance and a competitive economy.”

QUALITY JOBS

- Could this increase access to, or generate new, high quality jobs?
- Could this increase the median household income?
- Could this encourage and foster the development of the renewable energy economic sectors?
- Could this encourage the expansion and retention of targeted industries and other growth economic sectors, such as the entertainment industry, aerospace industry, agriculture, transportation/logistics, healthcare, biomed/biotech, hospitality and tourism?

WORKFORCE DEVELOPMENT

- Could this improve workers' skills and training opportunities, especially in high-growth sectors such as the green energy sector?
- Could this help grow Los Angeles County's green energy sector and create green energy jobs?
- Could this increase the number of public school graduates attaining professional certifications, or technical, associates or bachelor's degrees?
- Could this increase the number of individuals receiving County-sponsored, industry-focused training?
- Could this increase workforce participation?

NATURAL RESOURCES & SUSTAINABILITY:

“Carefully manage the County’s natural resources, such as air, water, wildlife habitats, mineral resources, agricultural land, forests, and open space in an integrated way that is both feasible and sustainable.”

RESILIENCE

- Could this action mitigate climate change risks and improve the County’s adaptive capacity?
- Could this reduce the risk of populations living near high hazard areas?
- Could this strengthen social cohesion in communities and emergency preparedness and response networks? Could this build stronger, more resilient communities?
- Could this mitigate increasing temperatures in the County and the urban heat island effect?
- Could this reduce heat risks for Environmental Justice communities and vulnerable populations?
- Could this increase public awareness of climate change issues?

RELIABILITY

- Could this reduce peak electricity demand?
- Could this bolster energy reliability that is essential to keeping people safe during emergency events?
- Could this increase the percent of residents with backup power?
- Could this minimize disruptions to energy or mobility services during emergencies or natural disasters?

NATURAL CAPITAL

- Could this increase ecosystem services by preserving and restoring land, protecting waterways, or preventing sewage discharges?
- Could this contribute to the preservation of green infrastructure, urban biodiversity, wildlife or habitat linkages?
- Could this increase the amount of permeable surface cover or prevent stormwater runoff by capturing stormwater onsite?

Appendix C: Co-Benefits Assessment

HEALTHY, LIVABLE, AND EQUITABLE COMMUNITIES:

“Design communities that incorporate their cultural and historic surroundings, are not overburdened by nuisance and negative environmental factors, and provide reasonable access to food systems.”

AIR QUALITY

- Could this improve outdoor air quality in communities that have been historically harmed by exposure to pollution?
- Could this reduce incidences of asthma, and respiratory and cardiac disease?
- Could this improve indoor air quality (i.e. ventilation, thermal comfort)?

AFFORDABILITY

- Could this reduce the energy burden of low income households?
- Could this improve affordability for severely rent-burdened households?
- Could this limit displacement of residents and small businesses when surrounding property values rise?
- Could this decrease the cost of transportation, in dollars and time spent travelling?
- Could this benefit health outcomes and productivity, leading to reduced countywide healthcare costs?

HEALTH AND WELLBEING

- Could this address health or Environmental Justice disparities?
- Could this increase the comfort and mental health of residents?
- Could there be improvements to the quality of indoor spaces (e.g. reduction of toxins, integrated pest management, mold)?
- Could this reduce noise pollution?
- Could this increase access to quality and local food?
- Could this encourage active, healthy modes of travel? Would this shift lead to a significant increase in the amount of physical activity?
- Could this bolster quality of life by reducing commute times?
- Could this improve access to green and healthy spaces such as parks, recreation centers, sports fields, and pedestrian and bicycle infrastructure?

* Quality of life is defined by the World Health Organization Quality of Life (WHOQOL) Group as “individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. This definition reflects the view that quality of life refers to a subjective evaluation that is embedded in a cultural, social, and environmental context.”

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Appendix D: Planning Area Profiles

Planning Area Profiles

Every community in Los Angeles County has a role to play in reducing environmental impacts due to GHG emissions and in reaching the County's GHG emissions reduction goals. Unincorporated communities are diverse in their demographics, geography, land use, and built form, and therefore the potential to reduce GHG emissions can vary significantly by community.

The following profiles provide an overview of each of the eleven planning areas as outlined in the County's General Plan. These planning profiles provide some information about the unincorporated areas from a climate action perspective and identify "Key Climate Actions" for each community. The profiles highlight select data points such as stationary energy emissions, population, exposure to pollution, health, and transportation patterns in each planning area.

Transportation related emissions from passenger vehicles and trucks, account for nearly 62 percent of all GHG emissions in unincorporated areas. Based on commute to work data, most planning areas seem to have a similar mode split. The Metro Planning Area has the lowest rates of driving and the highest rates of transit use. However, without additional information about travel behavior it is not possible to make meaningful interpretations about the distance traveled and transportation related emissions in each community. Due to limited data availability the Planning Area Profiles only note the commute mode split for each community.

Stationary energy, in particular buildings energy use is responsible for 30 percent of GHG emissions in unincorporated areas. A comparative analysis of stationary energy by planning area, population, sector, and fuel type is shown in Figures 9, 10 and 11. Each area's unique characteristics inform "Key Climate Action" priority recommendations to maximize the GHG reductions for each planning area. Opportunities for emissions reductions exist in all communities. Some key observations are:

- **The Metro Planning Area** has the highest total emissions but has the lowest emissions per capita. Similarly, the East San Gabriel Valley has the 2nd highest total emissions and the 2nd lowest emissions per capita. These are also the two most populous planning areas.
- **The Santa Monica Mountains and the San Fernando Valley** have high emissions per capita, but very low overall emissions.
- Of the eight planning areas with a population over 20,000, the **Santa Clarita Valley** has the highest per capita emissions. **The Gateway Planning Area** has the highest emissions per capita of the four planning areas with a population over 100,000.
- The West San Gabriel Valley, the Antelope Valley, and the East San Gabriel Valley have high percentage of emissions from the residential sector.
- **The Westside Planning Area** has a high percentage of emissions from the commercial sector.
- **The Gateway Planning Area** has high percentage of emissions from the industrial sector. Industrial emissions not only contribute to climate change but may also contain more local air quality pollutants than emissions from other sectors.
- **The Metro Planning Area** and the **West San Gabriel Valley** have the highest consumption of natural gas.
- **The Gateway Planning Area** has high percentage of emissions from the industrial sector. Industrial emissions not only contribute to climate change but may also contain more local air quality pollutants than emissions from other sectors.
- **The Metro Planning Area** and the **West San Gabriel Valley** have the highest consumption of natural gas.

Emissions by Planning Area



Figure 11: Stationary Energy Emissions Comparative Analysis

Emissions by Sector

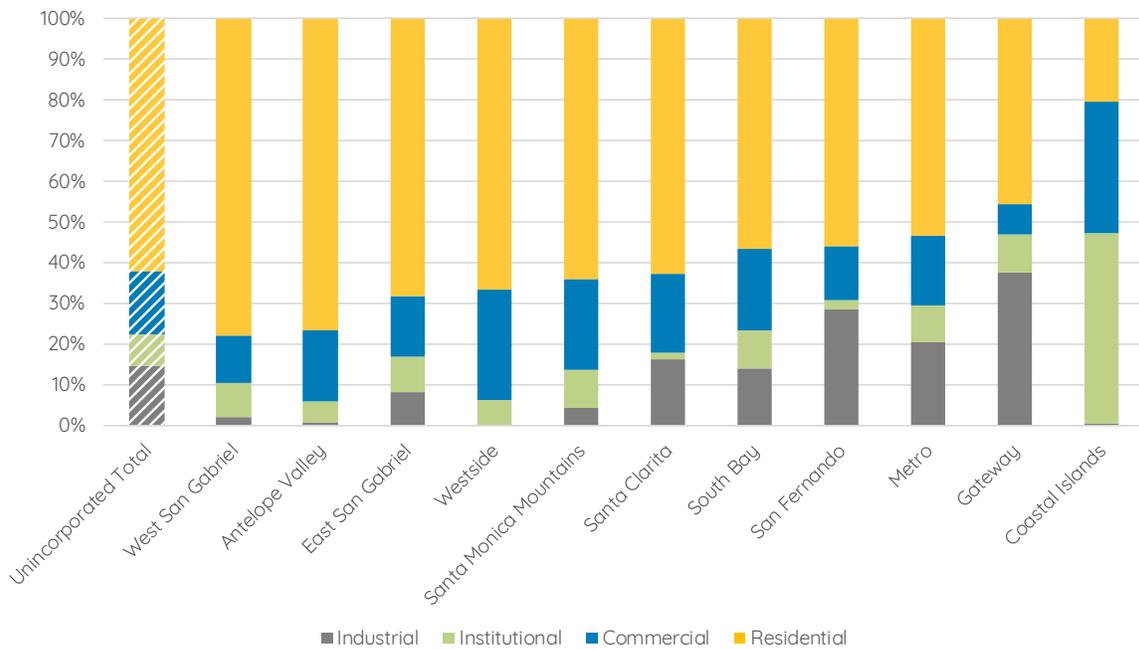


Figure 12: Stationary Energy GHG Emissions by Sector

Appendix D: Planning Area Profiles

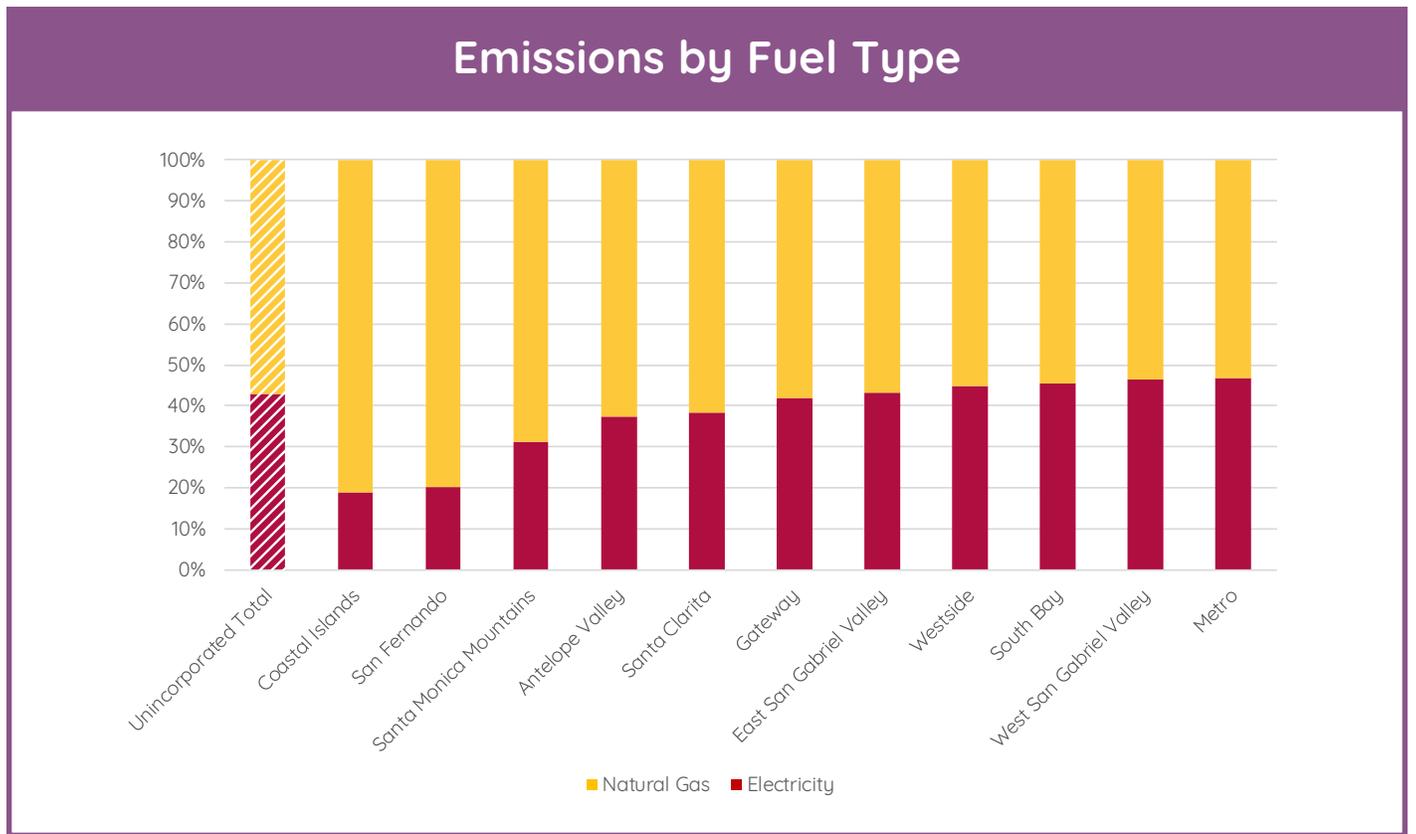


Figure 13: Stationary Energy GHG Emissions by Sector

Terms used in planning area profile

PM2.5 Percentile: PM is a combination of solid and liquid droplets found in the air. PM can include dust, dirt, soot, or smoke. Some PM is large enough to be seen but other types are microscopic (fine PM with a diameter of less than 2.5 microns). Fine PM can travel deeply into the human respiratory tract and can cause health effects such as throat irritation, coughing, or asthma. The PM2.5 percentile indicates the concentration of fine PM in each planning area as compared to all Census tracts within the State of California.⁶⁵

Pollution Burden Percentile: Pollution Burden indicators are issues of widespread concern in California that CalEPA's boards, departments, and office can take action to remedy, and are divided into two categories: Exposures are pollutants that may come into direct contact with people, while environmental effects are adverse environmental conditions caused by pollutants. The Pollution Burden Percentile indicates the pollution burden score in each planning area compared to all Census tracts within the State of California.⁶⁴

Asthma Percentile: Age-adjusted rate of asthma-related emergency department visits. Percentile is relative to all Census tracts within the State of California.⁶⁵

Estimated Population in Disadvantaged Communities: Unincorporated population in Census tracts where 75 percent or more of the population are identified as disadvantaged as measured by CalEnviroScreen 3.0.⁶⁶

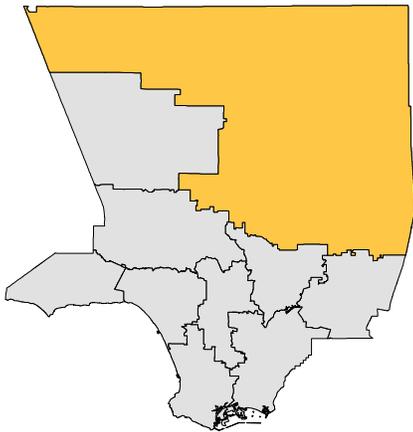
Estimated Population in High Quality Transit Areas (HQTA): HQTA are walkable areas within one half-mile of a well-serviced transit stop or a transit corridor, with 15-minute or better service frequency during peak commute hours. This indicator measures the population within unincorporated areas living within HQTAs. (SCAG RTP SCS, BuroHappold analysis)

Estimated Population in Transit Oriented District (TOD): Unincorporated population living within areas designated as TOD by Los Angeles County Department of Regional Planning. (Los Angeles County DRP, BuroHappold analysis)

Drive Alone/Carpool/Transit: Percentage of travelers using a particular type of transportation for trips to work. (American Community Survey 2013-2017)

Stationary Energy Emissions: Emissions from stationary sources in unincorporated areas by sector.

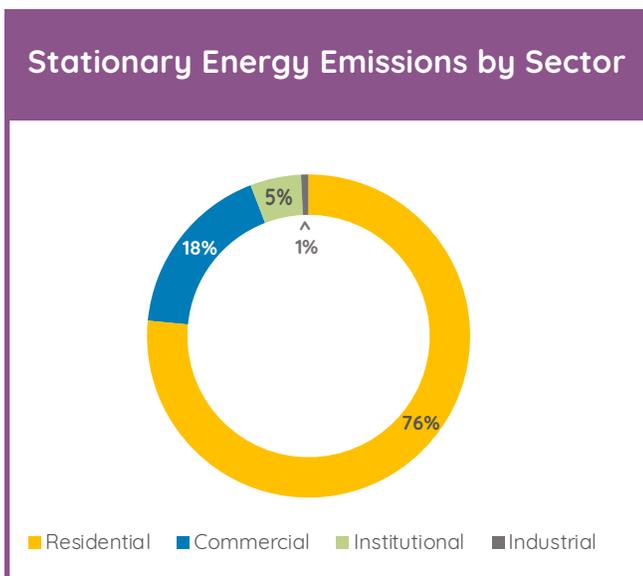
Appendix D: Planning Area Profiles



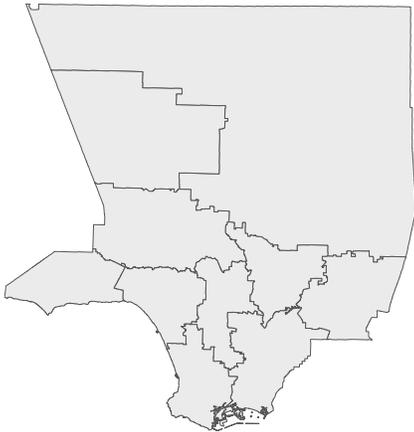
Antelope Valley Planning Area

The Antelope Valley Planning Area contains the majority of active agricultural land in Los Angeles County. The area faces a number of environmental challenges, including extreme heat, limited water supply, threats of wildfires, and floods. But the Antelope Valley also contains some of the County’s richest sources of biodiversity as identified through the County’s Significant Ecological Areas (SEA) Program. The area has a high rate of commuting by driving alone, but also has the highest bicycle mode split in the County (2 percent of trips to work are made by bicycle).

Metric	All Unincorporated Areas	Antelope Valley
Total Population	1,037,227	76,101
Stationary Energy Emissions	1,645,000 MTCO ₂ e	116,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	4,000
Estimated Population in TODs	69,000	0
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	80% / 11% / 1%
PM2.5 Percentile	63.6	14.5
Asthma Percentile	51.4	51.1
Estimated Population in Disadvantaged Communities	383,000	8,000



- #### Key Climate Actions
- Actions supporting transportation electrification
 - Actions to encourage biking and active transportation
 - Actions to preserve agricultural and natural areas
 - Actions decarbonizing agricultural practices
 - Actions targeting zero carbon energy in wildfire-prone areas

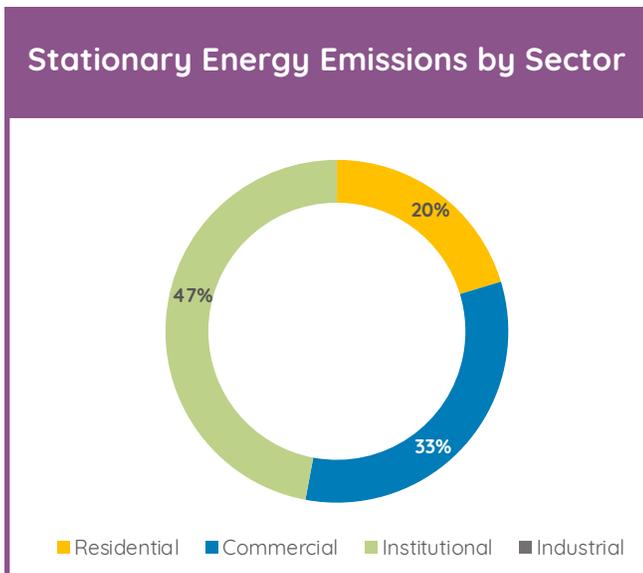


Coastal Islands Planning Area

The Coastal Islands are characterized by rugged landscape and a cliffed shoreline. While much of Santa Catalina Island is protected natural space, there is a landfill on the island. The area has the lowest population, lowest GHG emissions, and lowest natural gas use of any planning area. Institutional uses are responsible almost half of the areas GHG emissions.

Note: Data on health, pollution, and transportation patterns for the Coastal Islands Planning Area is unavailable, but data on population and energy use are provided.

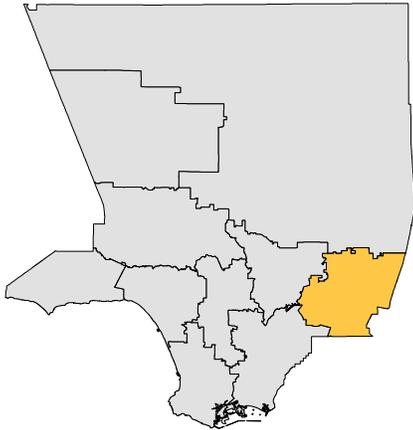
Metric	All Unincorporated Areas	Coastal Islands
Total Population	1,037,227	374
Stationary Energy Emissions	1,645,000 MTCO ₂ e	1,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	0
Estimated Population in TODs	69,000	0



Key Climate Actions

- Actions focused on improving transit services
- Actions encouraging density and active transit near high quality transit
- Actions supporting transportation electrification
- Actions to reduce residential and commercial stationary energy emissions
- Actions focusing on disadvantaged/vulnerable communities
- Actions to preserve agricultural and natural areas
- Actions targeting zero carbon energy in wildfire-prone areas

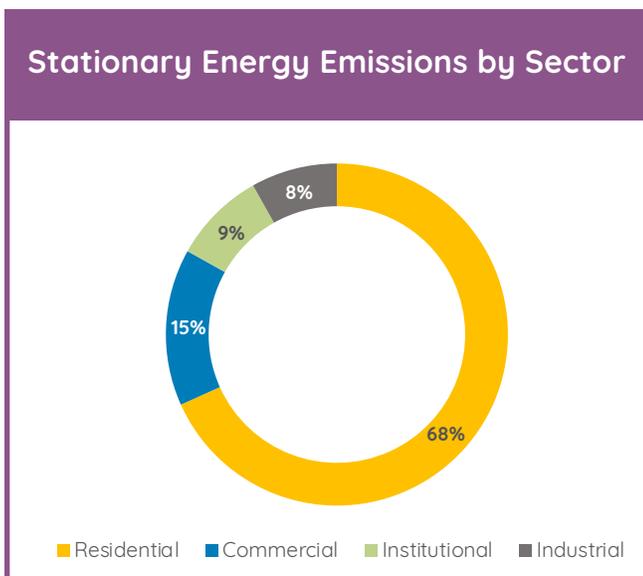
Appendix D: Planning Area Profiles



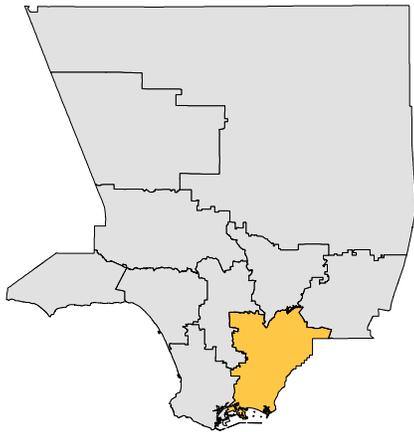
East San Gabriel Valley Planning Area

The East San Gabriel Valley Planning Area is characterized by valleys and rolling, dry hills. The northern portion of the planning area connects to the Angeles National Forest and San Gabriel Mountains. Wildfires and landslides pose safety hazards in the foothill communities. The East San Gabriel Valley Planning Area’s has the highest residential GHG emissions in the County. The area also has the highest rate of commuting by driving alone in the County.

Metric	All Unincorporated Areas	East San Gabriel Valley
Total Population	1,037,227	240,274
Stationary Energy Emissions	1,645,000 MTCO ₂ e	324,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	38,000
Estimated Population in TODs	69,000	0
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	80% / 9% / 3%
PM2.5 Percentile	63.6	71.7
Asthma Percentile	51.4	44.1
Estimated Population in Disadvantaged Communities	383,000	48,000



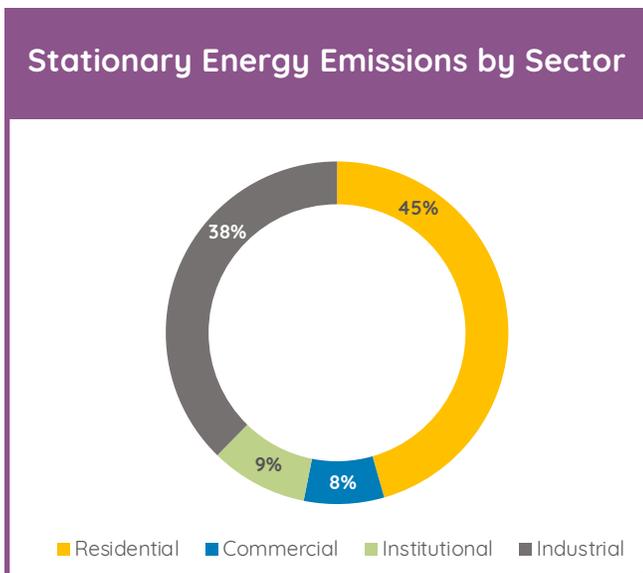
- #### Key Climate Actions
- Actions focused on improving transit services
 - Actions encouraging density and active transit near high quality transit
 - Actions supporting transportation electrification
 - Actions to reduce residential and commercial stationary energy emissions
 - Actions focusing on disadvantaged/vulnerable communities
 - Actions to preserve agricultural and natural areas
 - Actions targeting zero carbon energy in wildfire-prone areas



Gateway Planning Area

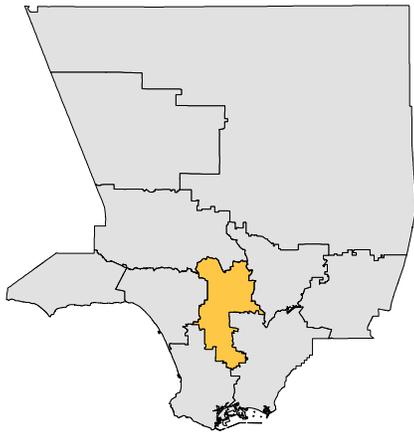
The Gateway Planning Area has a large amount of built-out industrial land. The concentration of industrial uses and freight traffic impact air and water pollution in this area. The Gateway Planning Area also suffers from a lack of parks and recreational opportunities. The area has a high rate of commuting by driving alone, a high rate of natural gas emissions per capita, and the highest industrial emissions in the County. The Puente Hills landfill and material recovery facility is located in the planning area.

Metric	All Unincorporated Areas	Gateway
Total Population	1,037,227	105,641
Stationary Energy Emissions	1,645,000 MTCO ₂ e	212,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	10,000
Estimated Population in TODs	69,000	600
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	80% / 10% / 3%
PM2.5 Percentile	63.6	79.2
Pollution Burden Percentile	62.3	69.1
Asthma Percentile	51.4	62.6
Estimated Population in Disadvantaged Communities	383,000	57,000



- ### Key Climate Actions
- Actions to reduce industrial stationary energy emissions
 - Actions to limit oil and natural gas production
 - Actions to reduce emissions from heavy duty trucks
 - Actions supporting transportation electrification
 - Actions focusing on disadvantaged communities
 - Actions to reduce VMT and traffic congestion
 - Actions diverting waste from landfills
 - Actions focused on building decarbonization

Appendix D: Planning Area Profiles

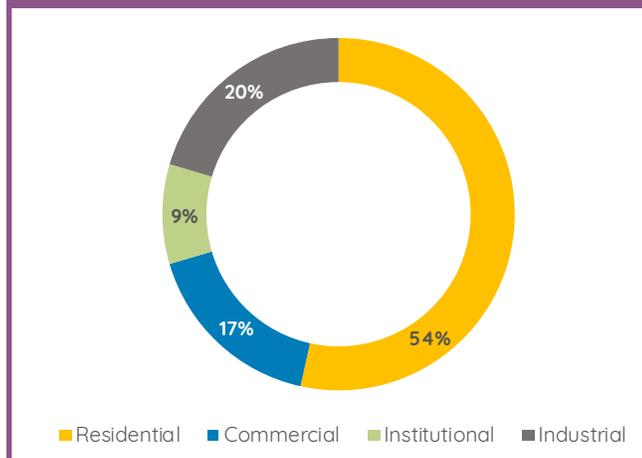


Metro Planning Area

The majority of the Metro Planning Area is urbanized and there are no large areas of natural open space outside of parks and recreational areas. The presence of industrial districts in residential areas creates land use conflicts and health impacts. The planning area also suffers from traffic congestion and inadequate pedestrian and bicycle infrastructure. The Metro planning area has the lowest rate of driving alone, the highest rate of commuting by transit, and the highest rate of commuting by walking.

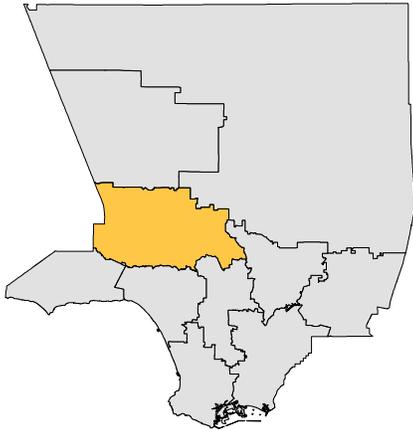
Metric	All Unincorporated Areas	Metro
Total Population	1,037,227	316,629
Stationary Energy Emissions	1,645,000 MTCO ₂ e	386,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	208,000
Estimated Population in TODs	69,000	57,000
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	72% / 12% / 9%
PM2.5 Percentile	63.6	83.62
Pollution Burden Percentile	62.3	80.41
Asthma Percentile	51.4	76.4
Estimated Population in Disadvantaged Communities	383,000	211,000

Stationary Energy Emissions by Sector



Key Climate Actions

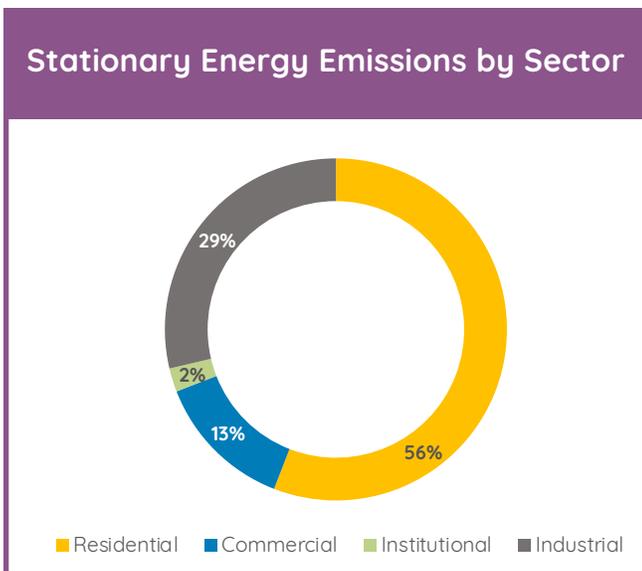
- Actions focused on improving transit services
- Actions encouraging density near high quality transit
- Actions to reduce VMT and traffic congestion
- Actions to encourage biking and active transportation
- Actions to limit oil and natural gas production
- Actions to reduce emissions from heavy duty trucks
- Actions focusing on disadvantaged communities
- Actions to reduce all sources of stationary energy emissions
- Actions focused on building decarbonization



San Fernando Valley Planning Area

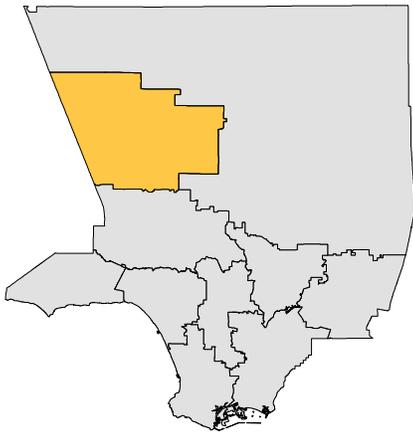
The San Fernando Valley Planning Area is ringed with distinct hillsides and mountain ranges. Only a small portion of the planning area is unincorporated. These communities are primarily low-density, suburban communities. The area faces significant wildfire hazards.

Metric	All Unincorporated Areas	San Fernando Valley
Total Population	1,037,227	5,559
Stationary Energy Emissions	1,645,000 MTCO ₂ e	15,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	0
Estimated Population in TODs	69,000	0
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	79% / 9% / 2%
PM2.5 Percentile	63.6	49.9
Pollution Burden Percentile	62.3	38.1
Asthma Percentile	51.4	27.3
Estimated Population in Disadvantaged Communities	383,000	88



- ### Key Climate Actions
- Actions to encourage biking and active transportation
 - Actions supporting transportation electrification
 - Actions targeting zero carbon energy in wildfire-prone areas
 - Actions to preserve agricultural and natural areas
 - Actions to expand urban forest areas and increase existing tree canopy

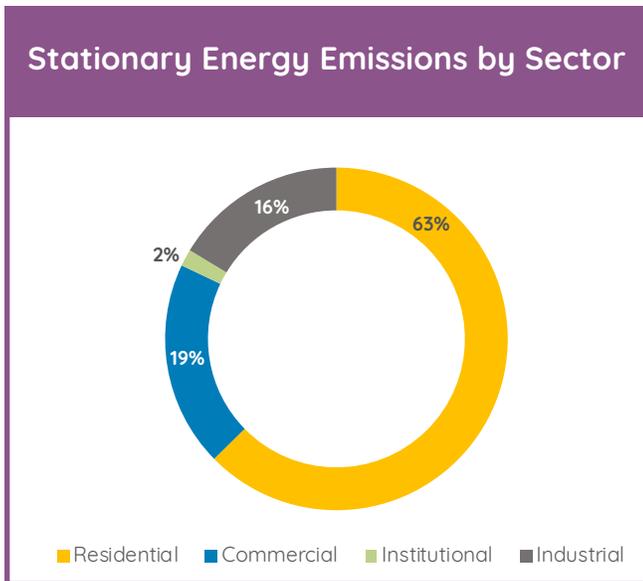
Appendix D: Planning Area Profiles



Santa Clarita Valley Planning Area

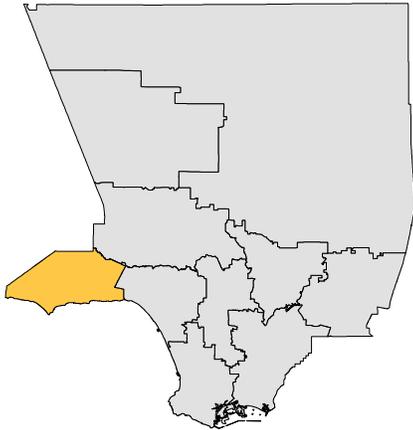
The Santa Clarita Planning Area is framed by mountain ranges and the Angeles National Forest. The planning area is one of the fastest growing areas in Los Angeles County. Due to this rapid growth, the planning area faces multiple challenges related to infrastructure planning, preservation of open space, and reducing vehicle miles traveled. The area has a high rate of commuting by driving alone, and the highest per capita natural gas emissions in the County.

Metric	All Unincorporated Areas	Santa Clarita Valley
Total Population	1,037,227	64,838
Stationary Energy Emissions	1,645,000 MTCO ₂ e	167,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	0
Estimated Population in TODs	69,000	0
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	79% / 9% / 2%
PM2.5 Percentile	63.6	33.2
Pollution Burden Percentile	62.3	38.9
Asthma Percentile	51.4	19.0
Estimated Population in Disadvantaged Communities	383,000	0



Key Climate Actions

- Actions supporting transportation electrification
- Actions to limit oil and natural gas production
- Actions to reduce commercial emissions
- Actions to preserve agricultural and natural areas
- Actions focused on building decarbonization
- Actions targeting zero carbon energy in wildfire-prone areas
- Actions to expand urban forest areas and increase existing tree canopy

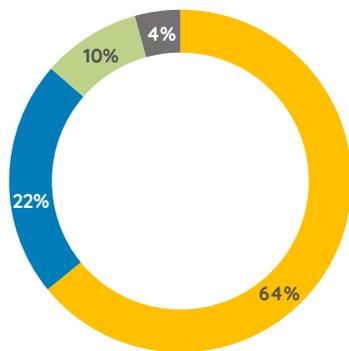


Santa Monica Mountains Planning Area

The Santa Monica Mountains Planning Area is characterized by mountains, dry valleys, and beaches. The planning area’s natural beauty comes with numerous environmental issues and natural hazards including severe wildfire risks and landslides. The Calabasas Landfill is in the planning area.

Metric	All Unincorporated Areas	Santa Monica Mountains
Total Population	1,037,227	19,781
Stationary Energy Emissions	1,645,000 MTCO ₂ e	52,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	0
Estimated Population in TODs	69,000	0
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	78% / 5% / 1%
PM2.5 Percentile	63.6	46.7
Pollution Burden Percentile	62.3	42.8
Asthma Percentile	51.4	2.8
Estimated Population in Disadvantaged Communities	383,000	0

Stationary Energy Emissions by Sector

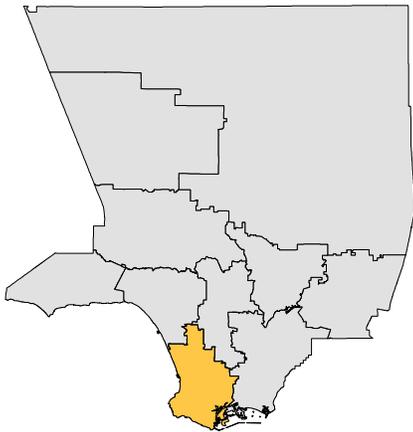


■ Residential ■ Commercial ■ Institutional ■ Industrial

Key Climate Actions

- Actions to preserve natural areas
- Actions targeting DER in wildfire-prone areas
- Actions relating to landfills and waste management

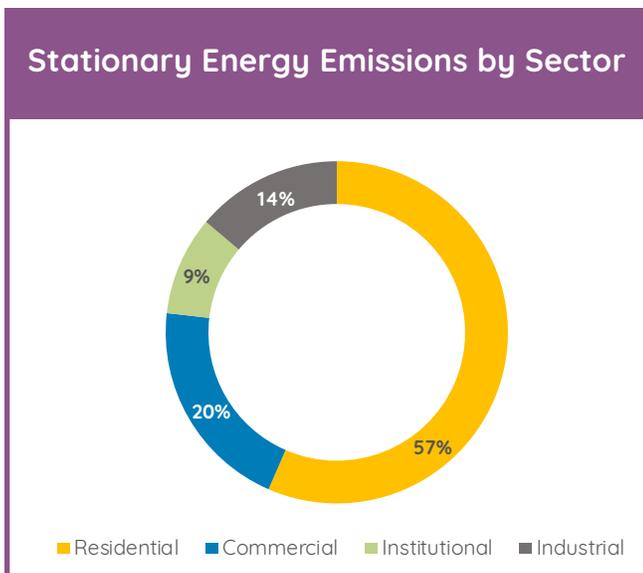
Appendix D: Planning Area Profiles



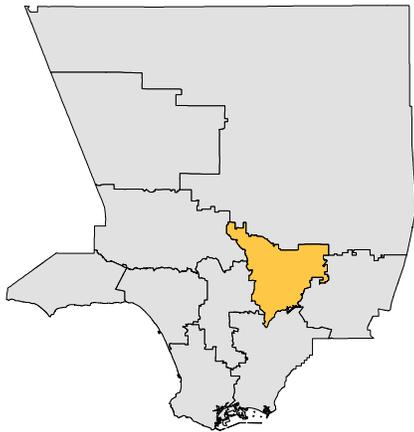
South Bay Planning Area

The South Bay Planning Area is covered with hills, open spaces, and rocky shorelines along the Pacific Coast. Issues facing the planning area include traffic congestion, limited public transportation options, and air quality concerns. The region’s proximity to LAX and the ports creates planning and air quality challenges. Petroleum refining is also a significant source of air pollution in the region.

Metric	All Unincorporated Areas	South Bay
Total Population	1,037,227	73,085
Stationary Energy Emissions	1,645,000 MTCO ₂ e	102,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	32,000
Estimated Population in TODs	69,000	10,000
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	77% / 10% / 4%
PM2.5 Percentile	63.6	78.1
Pollution Burden Percentile	62.3	83.1
Asthma Percentile	51.4	67.3
Estimated Population in Disadvantaged Communities	383,000	39,000



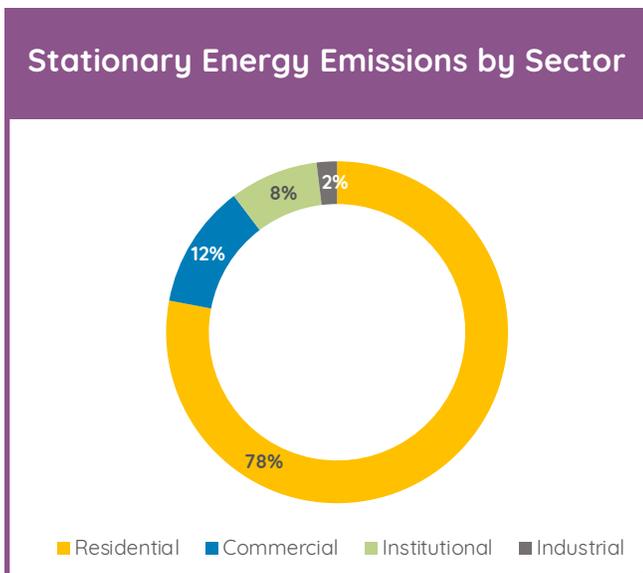
- #### Key Climate Actions
- Actions to limit oil and natural gas production
 - Actions focusing on improving transit services
 - Actions encouraging density near high quality transit
 - Actions to reduce emissions from heavy duty trucks
 - Actions relating to landfills and waste management
 - Actions focused on building decarbonization



West San Gabriel Planning Area

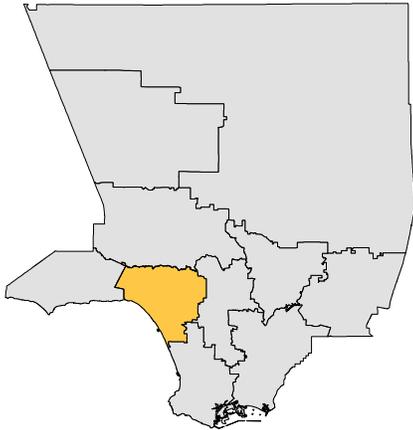
The West San Gabriel Planning Area includes the foothills of the San Gabriel Mountains and Angeles National Forest. The San Gabriel River flows north-south along the planning area’s eastern border. The planning area is almost entirely developed with historically suburban developments. Many of the communities are designated Very High Fire Hazard Severity Zones, which reflects the threat of wildfires and subsequent mudslides within those areas. The area has the third highest per capita natural gas emissions in the County.

Metric	All Unincorporated Areas	West San Gabriel Valley
Total Population	1,037,227	105,252
Stationary Energy Emissions	1,645,000 MTCO ₂ e	206,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	13,000
Estimated Population in TODs	69,000	2,000
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	79% / 10% / 3%
PM2.5 Percentile	63.6	62.0
Pollution Burden Percentile	62.3	61.51
Asthma Percentile	51.4	32.6
Estimated Population in Disadvantaged Communities	383,000	16,000



- ### Key Climate Actions
- Actions supporting transportation electrification and improved transit service
 - Actions to encourage transit for youth and seniors
 - Actions to reduce residential emissions
 - Actions focused on building decarbonization
 - Actions targeting zero carbon energy in wildfire-prone areas

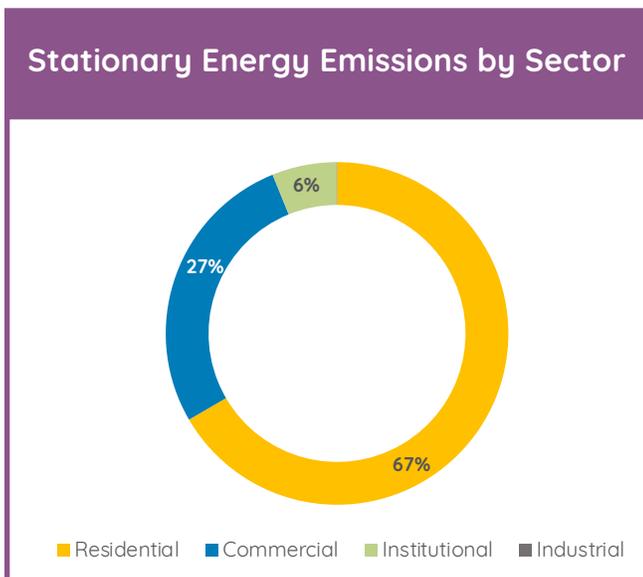
Appendix D: Planning Area Profiles



Westside Planning Area

The Westside Planning Area is comprised of beaches, Marina del Rey, Baldwin Hills and Kenneth Hahn State Park. Significant environmental resources exist in the planning area, most notably the Ballona Wetlands, which are threatened by potential sea level rise due to climate change. Most of Ladera Heights / View Park-Windsor Hills is in a Very High Fire Hazard Severity Zone. The Westside Planning Area also includes a large urban oil field in Baldwin Hills. The area has low access to transit, but the 2nd highest bicycle mode split in the County (2 percent). The area has the second highest per capita natural gas emissions in the County.

Metric	All Unincorporated Areas	Westside Planning Area
Total Population	1,037,227	29,693
Stationary Energy Emissions	1,645,000 MTCO ₂ e	64,000 MTCO ₂ e
Estimated Population in High Quality Transit Areas	330,000	26,000
Estimated Population in TODs	69,000	0
Drive Alone/ Carpool/ Transit	77% / 10% / 5%	76% / 7% / 3%
PM2.5 Percentile	63.6	75.5
Pollution Burden Percentile	62.3	71.8
Asthma Percentile	51.4	41.2
Estimated Population in Disadvantaged Communities	383,000	3,000



- #### Key Climate Actions
- Actions focusing on improving transit services
 - Actions encouraging density near high quality transit
 - Actions to encourage biking and active transportation
 - Actions to reduce commercial emissions
 - Actions to limit oil and natural gas production
 - Actions to reduce emissions from heavy duty trucks
 - Actions focused on building decarbonization

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Appendix E: Summary Table

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adaptation	Co-Benefits				
									Smart Growth	Community Services	Economy	Sustainability	Healthy, livable, and equitable communities
Climate Leadership													
Strategy 1	Lead by example towards carbon neutrality												
		By 2025	Reduce GHG Emissions by 25% below 2015 levels										
		By 2035	Reduce GHG emissions by 50% below 2015 levels										
		By 2045	Achieve carbon neutrality in unincorporated LA County										
CL1	Convene and collaborate with cities and other jurisdictions to support deep carbon reductions by sharing information, creating templates for sustainability planning or model ordinances, and convening workshops.	Enabling	CEO		Short Term	\$			No	No	Yes	No	
CL2	Collaborate with the City of Los Angeles and other cities to develop a sunset strategy for all oil and gas operations that prioritizes disproportionately affected communities.	Major	CEO	Cities, CALGEM, DPH, DRP	Long Term	\$\$	SP 84		No	Yes	Yes	Yes	
CL3	Collaborate with the City of Los Angeles and others to develop a "Just Transition" plan and task force that examines the impact of the transition to a cleaner economy on disadvantaged workers, identifies strategies for supporting displaced workers, and develops recommendations for ensuring inclusive employment practices within the County and leaders in the community, and in the private, institutional, and non-profit sectors who have committed to or can encourage carbon neutrality.	Enabling	CEO	City of Los Angeles, DCBA, DRP, Labor Unions, DPR, LAEDC	Medium Term	\$\$	SP 59		No	No	Yes	No	
CL4	Create a volunteer leadership initiative and public-private partnership between the County and leaders in the community, and in the private, institutional, and non-profit sectors who have committed to or can encourage carbon neutrality.	Enabling	CEO		Medium Term	\$\$			No	No	Yes	No	
CL5	Obtain a Transformative Climate Communities implementation grant.	Enabling	CEO	LACDA	Medium Term	\$	SP 152		No	No	Yes	No	
Transportation													
Strategy 2	Promote transit oriented communities												
		By 2025	Increase new housing built within 1/2 mile of high frequency transit to 50%										
			Reduce VMT per capita to 20 miles										
		By 2035	Reduce VMT per capita to 15 miles										
			Increase new housing built within 1/2 mile of high frequency transit to 65%										
		By 2045	Increase new housing built within 1/2 mile of high frequency transit to 75%										
			Reduce VMT per capita to 10 miles										
T1	Expand the number and extent of transit oriented communities, by encouraging development within High Quality Transit Areas, while ensuring vital public amenities such as parks and active transportation infrastructure are included.	Major	DRP	PW, Cities, DPR, Metro and other transit agencies	Medium Term	\$\$	SP 49	A	Yes	Yes	Yes	Yes	
T2	Develop community plans that will increase the percentage of residents who could live and work within the same community, and decrease the vehicle miles traveled.	Minor	DRP		Long Term	\$\$			Yes	Yes	Yes	Yes	
T3	Develop land use tools that will facilitate increased production of various housing types, such as duplex and triplex buildings, where appropriate.	Enabling	DRP	PW	Short Term	\$	SP 46		Yes	Yes	Yes	Yes	

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adaptation	Co-Benefits				
									Smart Growth	Community Services	Economy	Sustainability	Health, livable, and equitable
T4	Develop and implement a comprehensive parking reform strategy, which should include, but not be limited to: elimination of minimum parking requirements for all new residential units, establishment of parking maximums within ½ mile of high quality transit stops, creation and expansion of parking benefit districts, and incentives for developers to provide less than maximum allowable parking.	Enabling	DRP	PW	Short Term	\$\$	SP 99	Yes	Yes	No	Yes	Yes	
Strategy 3													
Reduce single occupancy vehicle trips		By 2025	15% of all trips by 2045, are taken by foot, bike, micro mobility, or public transit										
		By 2035	30% of all trips by 2045, are taken by foot, bike, micro mobility, or public transit										
		By 2045	50% of all trips by 2045, are taken by foot, bike, micro mobility, or public transit										
T5	Develop a transportation technology strategy to proactively address how evolving tech-enabled mobility options can support public transit and advance OurCounty goals.	Enabling	PW	CEO, DPH	Short Term	\$\$	SP 102	Yes	Yes	No	No	No	
T6	Create a more connected and safer bikeway network by expanding bikeway facilities and deploying protected and separated lanes.	Minor	PW		Medium Term	\$\$\$\$		Yes	Yes	No	No	Yes	
T7	Implement and regularly update the County's Pedestrian Action Plan, Bicycle Master Plan, Active Transportation Plans, and Vision Zero Action Plan.	Enabling	PW, DPH		Medium Term	\$\$\$\$\$		Yes	Yes	Yes	Yes	Yes	
T8	Expand shade along and over pedestrian networks through zoning code revisions that encourage shade-providing building features, such as galleries, arcades, and awnings, tree planting, and explore the encroachment of such features into portions of the Right-of-Way.	Enabling	DRP, PW		Medium Term	\$		A	Yes	Yes	No	Yes	
T9	Enhance pedestrian and bicycle environments through shading and energy efficient pedestrian-scale lighting and shading to promote active transportation.	Enabling	PW		Medium Term	\$\$\$		A	Yes	Yes	No	Yes	
T10	Expand and improve frequency of existing network of County shuttles and explore new mobility services, such as micro transit, in unincorporated County areas.	Major	PW		Medium Term	\$\$\$\$			Yes	Yes	No	No	
T11	Install bus-only lanes and signal prioritization along major thoroughfares, and work with transit agencies and neighboring jurisdictions to plan and install full bus rapid transit infrastructure along priority corridors, as appropriate.	Minor	PW	Cities, Metro, and Other Transit Agencies	Short Term to Medium Term	\$\$\$\$\$\$	SP 98	Yes	Yes	No	No	Yes	
T12	Set aside maintenance funds to ensure public transit facilities, including stations and stops, are safe and clean to enhance the transit experience and increase ridership.	Enabling	PW		Short Term	\$\$		Yes	Yes	No	No	Yes	
T13	Develop and implement a transportation demand management (TDM) ordinance that requires developers to incorporate measures such as subsidized transit passes and car share.	Enabling	CEO, PW	DRP, Metro and Other Transit Agencies	Short-to-Medium Term	\$	SP 101	Yes	Yes	No	No	Yes	
T14	Partner with local jurisdictions and transit agencies such as the City of Los Angeles and Metro to develop and implement a "Transit First" policy and mobility advocacy campaign that is consistent with and	Enabling	PW	City of Los Angeles, Metro and Other Transit	Short Term	\$	SP 96	Yes	Yes	No	Yes	Yes	

Continuation of the County Vision Zero Plan

Appendix E: Summary Table

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adoption					Co-Benefits				
								Smart Growth	Community Services	Economy	Sustainability	Health, livable, and equitable	Smart Growth	Community Services	Economy	Sustainability	Health, livable, and equitable
T15	Build shade structures at major transit stops, such as those identified in Metro's Active Transportation Strategic Plan, prioritizing communities with high heat vulnerability.	Enabling	DPR, PW	DPH, DRP, Metro, and Other Transit Agencies	Short Term	\$	SP 30	A	Yes	Yes	No	Yes	Yes	Yes			
T16	Offer free transit passes for students, youth, seniors, disabled, and low-income populations.	Minor	PW	Metro and Other Transit Agencies	Short Term	\$\$	SP 100		Yes	Yes	No	No	Yes				
T17	Develop and implement a Shade Corridor Ordinance to encourage continuous shade for human movement in areas with high public transit use to protect public transit riders from extreme heat.	Enabling	PW	DRP, DPH	Medium Term	\$		A	Yes	Yes	No	Yes	Yes				
Strategy 4 Institutionalize low-carbon transportation		By 2025	30% of all new light-duty vehicles are zero emission vehicles														
		By 2028	500 EV and 200 ZEV charging stations at County-owned properties, public venues, and public Right-of-Way														
		By 2030	80% of all light-duty vehicle sales are EVs or ZEVs														
		By 2035	80-100% of Metro buses on the road and 100% of the new buses are electric														
		By 2045	80% of all new light-duty vehicles are zero emission vehicles														
Pilot vehicle-grid integration applications at workplaces to maximize the benefits that daytime charging for plug-in electric vehicles (PEVs) can have on the grid, including demand response to reduce peak loads and energy storage during periods of renewable overproduction.		By 2050	1000 public EV and ZEV charging stations														
		By 2045	100% of all new light-duty vehicles are zero emission vehicles														
		By 2050	MetroLink is 85% electric														
		Minor	ISD, PW		Medium Term	\$		A	No	Yes	No	Yes	Yes				
		Minor	ISD	FIRE, LASD, Metro, PW, DPR, DBH	Medium Term	\$\$\$	SP 92		No	Yes	Yes	No	Yes				
T19	Install EV chargers at County facilities and properties for public, employee, and fleet use, prioritizing locations in disadvantaged communities.	Minor	ISD	FIRE, LASD, Metro, PW, DPR, DBH	Medium Term	\$\$\$	SP 92		No	Yes	Yes	No	Yes				
T20	Partner with a car or ride-sharing organization to provide access to EVs for low-income and Disadvantaged Community (DAC) residents	Enabling	PW	CEO	Medium Term	\$\$			Yes	Yes	No	No	Yes				
T21	Advocate at the State level for policies and programs for ride share organizations to help all ride-share drivers go electric.	Enabling	CEO		Medium Term	\$			No	No	No	No	Yes				
T22	Expand electric options for promoting active transportation, such as electric scooters and e-bikes.	Major	PW	CEO	Medium Term	\$\$			Yes	Yes	No	No	Yes				
T23	Electrify County bus fleet and shuttles by 2030, and partner with transit agencies for group purchasing and siting of shared charging and/or fueling infrastructure.	Major	PW, ISD		Long Term	\$\$\$\$			Yes	Yes	Yes	No	Yes				
T24	Advocate for the electrification of MetroLink.	Minor	CEO		Long Term	\$			No	No	No	No	Yes				

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adaptation	Co-Benefits											
									Smart Growth	Community Services	Economy	Sustainability	Healthy, livable, and equitable communities							
Strategy 5																				
Accelerate freight decarbonization																				
		By 2025	25-50% of medium-duty delivery trucks are electric or zero emission																	
		By 2028	5% of heavy-duty delivery trucks are electric or zero emission																	
		By 2045	10% of heavy-duty delivery trucks are electric or zero emission																	
T25	Implement freight decarbonization technologies along highway corridors passing through unincorporated communities.	Major	ISD		Long Term	\$			No	No	Yes	No	Yes	Yes						
T26	Streamline permitting of charging and fueling infrastructure for medium- and heavy-duty vehicles.	Enabling	PW		Medium Term	\$			No	Yes	Yes	Yes	Yes	Yes						
Strategy 6																				
Explore zero emission technologies for off-road vehicles and equipment																				
T27	Adopt an ordinance that prohibits the sale of gas-powered leaf blowers, lawnmowers, and other small off-road equipment in unincorporated County.	Enabling	TTC		Medium Term	\$			No	No	Yes	No	No	Yes						
T28	Partner with SCAQMD and AVAQMD to encourage the use of zero-emission and near-zero-emission construction, agriculture, and manufacturing equipment in unincorporated County.	Minor	CEO		Long Term	\$			No	No	Yes	No	No	Yes						
T29	Require whenever feasible the use of zero-emission and near-zero-emission construction, agriculture, and manufacturing equipment for County projects.	Minor	PW		Long Term	\$\$\$			No	No	Yes	No	No	Yes						
Stationary energy																				
Strategy 7																				
Decarbonize building energy use																				
		By 2025	Reduce building energy use intensity by 15% based on 2015 baseline for residential and industrial building																	
			Reduce building energy use intensity by 15% based on 2015 baseline for commercial buildings																	
			All new buildings and major building renovations to be net zero carbon 50%																	
		By 2035	Reduce building energy use intensity by 25% based on 2015 baseline for residential and industrial building																	
			Reduce building energy use intensity by 35% based on 2015 baseline for commercial buildings																	
			All new buildings and major building renovations to be net zero carbon 75%																	
		By 2045	Reduce building energy use intensity by 35% based on 2015 baseline for residential and industrial building																	
			Reduce building energy use intensity by 50% based on 2015 baseline for commercial buildings																	
			All new buildings and major building renovations to be net zero carbon 100%																	
SE1	Adopt an energy and water efficiency ordinance for existing buildings, requiring all buildings over 20,000 square feet to benchmark and report their energy and water use, and demonstrate their pathway to energy and water efficiency.	Enabling	CEO	PW	Short Term	\$	SP 117		No	Yes	No	Yes	Yes	Yes						
SE2	Establish carbon intensity limits for buildings over 20,000 square feet.	Major	PW		Medium Term	\$\$			No	Yes	Yes	Yes	Yes	Yes						
SE3	Expand and enhance the energy efficiency programs offered by the Southern California Regional Energy Network (SoCalREN).	Minor	ISD		Medium Term	\$\$\$	SP 118		No	Yes	Yes	Yes	Yes	Yes						

Appendix E: Summary Table

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Co-Benefits					
								Adaptation	Smart Growth	Community Services	Economy	Sustainability	Healthy, livable, and equitable communities
SE4	Adopt building code requirements for electric water and space heating and encourage alternatives to other natural gas uses in new and existing buildings.	Major	PW		Short Term	\$		No	Yes	No	Yes	Yes	
SE5	Adopt CALGreen Tier 1 green building standards and identify which Tier 2 standards could be adopted as code amendments.	Major	PW		Medium Term	\$	SP 31	No	No	Yes	Yes	Yes	
SE6	Incentivize net zero energy residential and commercial buildings through streamlined development reviews.	Enabling	DRP, PW		Short Term	\$		No	No	Yes	Yes	Yes	
SE7	Collaborate with the City of Los Angeles, Santa Monica and other members of the Building Decarbonization Coalition to develop building energy and emissions performance standards that put the unincorporated County on a path towards building decarbonization.	Enabling	PW	Cities	Medium Term	\$\$	SP 85	No	No	Yes	Yes	Yes	
SE8	Develop design guidance for landscape plans to protect solar access for rooftop solar panels while maximizing biodiversity and water conservation.	Enabling	PW, DRP		Medium Term	\$		A	No	No	Yes	No	
Strategy 8	Promote water conservation	By 2025	Per capita water demand does not exceed 115 gallons per day										
		By 2035	Per capita water demand does not exceed 100 gallons per day										
		By 2050	Per capita water demand does not exceed 85 gallons per day by 2050										
SE9	Promote the use of recycled water and gray water to be used for agricultural and industrial purposes.	Enabling	PW	LACSD, DPH, DRP	Short Term	\$		No	Yes	Yes	Yes	No	
SE10	Develop a Net Zero Water Ordinance for new development.	Minor	PW	CEO, DRP, LACSD, RR/CC	Short Term	\$	SP 114	A	No	Yes	No	Yes	No
SE11	Identify and remove barriers to installing and retrofitting on-site gray water-recycling systems while protecting public health.	Enabling	PW, DPH		Long Term	\$		No	Yes	No	Yes	Yes	
SE12	Invest in multi-benefit water management solutions that diversify and increase reliability of the water supply, reduce dependency on imported water, prioritize solutions that mimic natural systems, and maximize benefits to Native and disadvantaged communities.	Minor	PW	Caltrans, Cities, DPR, Local water agencies, Metro, LACSD	Short-to-Long Term	\$\$\$\$	SP 34	A	No	Yes	Yes	Yes	
SE13	Encourage residents to replace water-intensive landscaping, such as grasses, with water-conserving landscaping through education and incentive programs.	Enabling	PW		Short Term	\$\$\$		A	No	No	Yes	No	
Strategy 9	Increase energy resilience	By 2025	Increase Distributed Energy Resources (DER) capacity by 200MW based on 2018 baseline.										
		By 2035	Increase Distributed Energy Resources (DER) capacity by 500MW by 2035 based on 2018 baseline.										
		By 2045	Increase Distributed Energy Resources (DER) capacity by 1 GW by 2045, based on 2018 baseline.										
Ensure 10% of all DER installation in wildfire prone communities.													
SE14	Develop a publicly-accessible community energy map that identifies opportunities for deploying distributed energy resources and micro grids in order to improve energy resiliency in disadvantaged communities.	Enabling	CEO	PW, Utilities	Short Term	\$\$	SP 86	A	No	Yes	No	Yes	Yes
SE15	Investigate low- or no-cost options to provide community shared solar facilities on County property.	Enabling	CEO, ISD	PW, Utilities	Short Term	\$	SP 87		No	Yes	Yes	Yes	
SE16	Partner with the CPA to promote DER installation in unincorporated areas, prioritizing installation in wildfire prone communities.	Major	CEO	PW	Medium Term	\$\$		A	No	Yes	Yes	Yes	Yes

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adaptation	Co-Benefits												
									Smart Growth	Community Services	Economy	Sustainability	Health, livable and equitable communities								
Strategy 10											100% of all retail sales are from eligible renewable energy resources										
Increase renewable energy											Install solar in 20% of commercial buildings over 50,000 sqft and at least 10% of single family residential buildings										
		By 2025																			
		By 2035																			
		By 2045																			
SE17	Use County's role in the CPA to encourage 100% renewable energy resource mix by 2025.	Major	CEO	PW	Medium Term	\$				No	Yes	No	No	Yes							
SE18	Leverage the County's role in the CPA to encourage a community solar program that would provide access to solar photovoltaic (PV) energy generation for residents in multifamily buildings.	Enabling	CEO	PW	Medium Term	\$				No	Yes	Yes	Yes	Yes							
SE19	Identify partnerships and incentives for accelerating solar installation in existing buildings and over parking lots.	Enabling	DRP, PW	DPR, DBH, ISD	Medium Term	\$				No	Yes	Yes	Yes	Yes							
SE20	Partner with CPA to create programs for virtual net metering and programs to incentivize commercial scale renewable energy projects.	Enabling	CEO	PW	Long Term	\$\$				No	Yes	No	Yes	Yes							
Waste																					
Strategy 11											Decrease overall per capita waste generation by 25%;										
Introduce incentive-based systems to reduce waste											Decrease overall per capita waste generation by 30%; and										
		By 2025																			
		By 2035																			
		By 2045																			
W1	Identify, where appropriate, best practice waste pricing programs to reduce waste generation, including but not limited to differential prices for waste based on amount generated in the residential sector and reforms to tipping rate structures.	Enabling	PW	LACSD	Short Term	\$\$				Yes	No	No	Yes	Yes							
W2	Incentivize the development of local upcycling and recycling markets and quality recycled materials.	Enabling	PW	CalRecycle, DRP, PR/CC	Short Term	\$\$\$\$				No	No	Yes	Yes	Yes							
Strategy 12											Divert waste from landfills: 80% by 2025										
Generate widespread support for sustainable waste future											Divert waste from landfills: 90% by 2035;										
		By 2025																			
		By 2035																			
		By 2045																			
W3	Engage and empower stakeholders through a sustainable waste management future communications campaign.	Enabling	PW		Medium Term	\$\$\$				No	Yes	No	Yes	Yes							
W4	Increase the diversion requirements in the County's Construction & Demolition debris ordinance, encourage the use of recycled-content materials in construction projects, and incentivize use of recycled materials in public art projects funded or commissioned by the County.	Major	PW	Arts and Culture	Short Term	\$				No	No	No	Yes	Yes							
W5	Establish guidelines for large-quantity food waste or green waste generators to perform on-site composting, mulching or anaerobic digestion, and develop a marketing plan for the product.	Enabling	ACWM, DPH, PW	CalRecycle, DRP	Medium Term	\$\$				No	Yes	Yes	Yes	Yes							
W6	Promote and communicate countywide source separation, organic waste collection requirements, food waste reduction and donation, and local organic waste recycling programs, and conduct targeted, sector-based educational campaigns.	Minor	ACWM, DPH, PW	CalRecycle	Short Term	\$				No	Yes	No	Yes	Yes							

Appendix E: Summary Table

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adaptation	Smart Growth	Community Services	Economy	Sustainability	Healthy, liveable, and equitable communities	
Strategy 13	Reduce and divert organic waste	By 2025						Reduce organic waste to landfills by 75% by 2025 from 2017 baseline						
								Reduce methane emissions by 30% by 2025 from 2017 baseline						
		By 2035						Reduce organic waste to landfills by 90% by 2035 from 2017 baseline						
									Reduce methane emissions by 45% by 2035 from 2017 baseline					
		By 2045						Reduce organic waste to landfills by 95% by 2045 from 2017 baseline						
									Reduce methane emissions by 60% by 2045, from 2017 baseline					
w7	Enhance and expand the County's existing Food DROP food donation and redistribution program to divert edible food from landfills and make it available to food insecure communities.	Major	PW	DPH	Short-to-Medium Term	\$\$	SP 128		No	Yes	No	Yes	Yes	
w8	Collaborate with waste haulers to develop organics collection and diversion programs in County unincorporated communities.	Major	PW		Medium Term	\$\$\$			No	Yes	Yes	Yes	Yes	
w9	Maximize organics diversion through neighborhood and regional composting, anaerobic digestion, chipping/grinding operations and biomass conversion facilities.	Major	PW		Long Term	\$\$\$\$			No	Yes	Yes	Yes	No	
Industrial processes and product use														
Strategy 14	Promote clean manufacturing processes													
I1	Lead and support a regional green chemistry / clean manufacturing incubator that facilitates linkages between developing businesses and workforce development efforts for target populations.	Enabling	CEO	PW, WDACS, DCBA, LACDA, Local colleges and	Medium Term	\$\$	SP 62		No	No	Yes	Yes	Yes	
Strategy 15	Substitute emission intensive products	By 2025						Reduce HFC emissions by 30% by 2025 from 2017 baseline.						
		By 2035						Reduce HFC emissions by 45% by 2035 from 2017 baseline.						
		By 2045						Reduce HFC emissions by 60% by 2045, from 2017 baseline.						
I2	Partner with utilities to incentivize equipment replacement that phases out high GWP refrigerants.	Major	CEO		Medium Term	\$			No	No	Yes	Yes	Yes	
Agriculture, forestry, and other land use														
Strategy 16	Conserve forests and working lands	By 2025						Restore 2000 acres of forest land from 2017 baseline.						
								Increase urban tree canopy cover by 10% by 2025						
		By 2035						Restore 4000 acres of forest land from 2017 baseline.						
								Increase urban tree canopy cover by 15% by 2035						
		By 2045						Restore 6000 acres of forest land, from 2017 baseline						
							Increase urban tree canopy cover by 20% by 2045							

ID	Action	Action Type	Lead	Partners	Timeframe	Cost	Sustainability Plan Number	Adaptation	Co-Benefits					
									Smart Growth	Community Services	Economy	Sustainability	Healthy, livable, and equitable communities	
A1	Support the preservation of agricultural and working lands, including rangelands, and restore forest lands, by limiting the conversion of these lands to residential or other uses through tools such as the creation of agricultural easements, particularly within high climate-hazard areas and SEAs.	Minor	DRP	State Agencies	Short Term	\$	SP 47	A	Yes	No	No	Yes	Yes	Yes
A2	Create and implement a community-informed Urban Forest Management Plan that incorporates equitable urban forest practices, identifies County funding sources, and prioritizes: 1. Tree- and park-poor communities; 2. Climate and watershed-appropriate and drought/pest-resistant vegetation; 3. Appropriate watering, maintenance, and disposal practices; 4. Shading, and; 5. Biodiversity.	Enabling	CEO	CAL FIRE, DBH, DPH, DPR, DRP, FIRE, LASD, PW	Short Term	\$\$\$\$	SP 43	A	Yes	Yes	No	Yes	Yes	Yes
A3	Continue and expand County tree planting to increase the urban forest in both the public right of way and on private property.	Minor	PW, DPH		Short Term	\$\$\$		A	Yes	Yes	No	Yes	Yes	Yes
A4	Support the use of public and private land for urban and peri-urban agriculture, community gardens, by measures such as identifying available public parcels, streamlining permitting and leasing processes, and incentivizing the conversion of vacant property to agricultural use.	Minor	CEO	LACDA, DPR, DRP, ISD, PW	Short Term	\$\$	SP 130		Yes	Yes	No	Yes	Yes	Yes
Strategy 17														
Promote regenerative agricultural practices														
A5	Reduce the use of synthetic fertilizers through precision agriculture and promote efficient use of compost and manure.	Minor	ACWM		Medium Term	\$			No	No	No	Yes	Yes	Yes
A6	Create fallow and field resting incentives to reduce bare-fallow land by adding cover crops and promoting crop rotation for active agricultural sites to improve soil quality, limit risks of nutrient erosion, pollutant run-off and yield reduction.	Enabling	ACWM		Medium Term	\$		A	No	No	No	Yes	Yes	Yes

Glossary

Some definitions used here are specific to the OurCounty plan and may not reflect broader usage.

A

Active Transportation	A mode of transportation that includes walking, running, biking, skateboarding, traveling by scooter and other human powered forms of transportation. It can also include low-speed electrical devices such as motorized wheel chairs, e-scooters, and electric-assist bicycles.
Adaptation	The effort to adjust practices and development in response to climate change in order to lessen future impacts.
Anaerobic Digestion	A process by which organic matter, such as food waste or sewage, is broken down in the absence of oxygen to produce biogas and biofertilizer.

B

Biodiversity	The variety and variability of flora, fauna and ecosystems. Biodiversity can be observed on macro levels, micro levels and in between. Biodiversity is complex, fragile and increasingly threatened by urbanization and climate change. Rich biodiversity supports many aspects of human life from food and medicine to environmental quality.
Biogas	A type of gas, primarily composed of methane, derived from the process of bacterial decomposition of sewage, manure, food, plant crops, or other organic waste products.
Biomass conversion	Thermal conversion of organic materials such as wood waste, lawn clippings, agricultural waste, and non-recyclable paper, when separated from other waste.
Building Decarbonization	The process of creating buildings that contribute zero GHG emissions. For example, a newly constructed building can incorporate reused, recycled, and other low carbon intensity materials. Operationally, the building is energy efficient and uses renewable, zero-carbon energy sources for heating, cooling, and power.

C

Carbon Dioxide (CO ₂)	A GHG made up of one carbon atom and two oxygen atoms that is released primarily through the burning of fossil fuels, other hydrocarbons, solid waste, and trees and wood products. Changes in land use also play a have an impact. Deforestation and soil degradation add carbon dioxide to the atmosphere, while forest regrowth takes it out of the atmosphere. While carbon dioxide is naturally occurring, the proportion of carbon dioxide in our atmosphere is increasing due to human activities. Increasing concentration levels of carbon dioxide and other GHGs contribute to climate change.
Carbon-Efficient	Contributing fewer carbon emissions compared to a conventional process while still providing the same service. A building, machine, or process is carbon-efficient if it can deliver more functions or services for the same amount of carbon emissions, or the same function or service for fewer carbon emissions, compared to a conventional alternative.
Carbon Neutral	A system or jurisdiction that has net zero greenhouse gas emissions. Strategies to achieve carbon neutrality include renewable energy supply, efficient buildings, low-carbon transportation, sustainable materials choices, and deep retrofits to existing buildings and infrastructure. Carbon neutrality may require carbon sequestration technologies to capture the remainder of GHG emissions.
Car-Share	An integrated network of passenger vehicles available for short-term rental. Car-share can take the form of return systems in which a vehicle must be returned to the parking space from which it was rented. Alternatively, it can take the form of point-to-point systems in which the car can be returned to another space, or left anywhere within a predetermined geographic zone.
Chargeback	A usage fee for electric vehicle chargers.
Clean Manufacturing	Manufacturing processes that minimize waste and pollution production and limit or eliminate the use of toxic chemicals.
Climate Vulnerability Assessment	An analysis of the extent to which a species, habitat, ecosystem or civilization is susceptible to harm from climate change impacts. Vulnerability assessments are an integral component of climate adaptation planning.
Co-Generation Facility	An energy plant that recovers waste heat from conventional power generation to produce thermal energy. Also called a combined heat and power (CHP) system.

Glossary

Community Shared Solar Facilities Solar photovoltaic (PV) systems that generate and supply electricity to multiple customers within a specific geographic area. Participants typically make payments to reserve a portion of a solar system or the rights to a portion of its output. As the system generates electricity, all participants receive credits on their energy bill.

Compost The product, rich in nutrients, resulting from the decomposition of organic material. Material used to make compost includes landscape trimmings, agricultural crop residues, paper pulp, food scrap, wood chips, manure, and biosolids. These are typically referred to as feedstock.

D

Decarbonization Reduction in carbon intensity and GHG emissions of a system or sector, such as buildings or transportation.

Disadvantaged Communities Areas that suffer most from a combination of economic, health and environmental burdens as defined by the California Office of Environmental Health Hazard Assessment. These burdens typically include poverty, unemployment, health conditions, air and water pollution, and hazardous waste.

Distributed Energy Resources (DER) Decentralized sources of energy that are smaller than utility-scale energy sources and can be aggregated to provide the power necessary to meet regular demand.

E

Economic Opportunity The potential of someone to realize economic success. Similar to economic mobility, economic opportunity can be influenced by many factors such as where one lives and goes to school or the availability of jobs.

E-Scooters / Electric Scooters Scooters with an electric motor that assist with user mobility. See also micromobility.

Electric Vehicles (EV) An umbrella term to describe a variety of vehicle types that use electricity as their primary fuel source for propulsion or as a means to improve the efficiency of conventional internal combustion engine. These generally include battery electric vehicles, plug-in hybrid electric vehicles, and fuel cell electric vehicles.

Energy Efficiency The use of less energy to provide the same service. A process, building, machine, or other energy consuming object is more energy efficient if it delivers more functions or services for the same energy input, or the same function or service for less energy input, compared to a conventional process.

Energy Retrofit	Major changes to the structure or systems of an existing building for the purpose of achieving significant reductions in energy consumption (and operational costs) with the use of more efficient technologies, products, and designs. Energy retrofits may also reduce water consumption and improve occupant amenities
Energy Storage System	Technologies that collect generated energy, so it may be used at another time. Energy storage includes electric systems such as batteries as well as thermal systems such as hot and cold water storage tanks. Energy storage can enhance the technical and economic viability of a distributed generation system and can operate critical systems during grid outages or in the case of emergency.
Energy Use Intensity (EUI)	The amount of energy consumed by a building over a period of time and normalized by another factor, such as per square foot or per person. EUI is most often represented as total energy consumption of one building in one year (typically presented in kBtu) divided by the total gross floor area of the building. These factors allow for the comparison of building performance across buildings of different types and sizes. See also kBtu.
Environmental Justice	Defined by Government Code section 65040.12(e) as “the fair treatment of people of all races, cultures and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations, and policies.
Equity	An end state in which all groups have access to the resources and opportunities necessary to improve the quality of their lives.
F	
First/Last Mile	The beginning or end of an individual’s trip on transit. First/last mile improvements may include bike lanes, bike parking, bike share, sidewalks, and crosswalks, bike share, signage and way-finding (e.g. information kiosks and mobile apps).
Fossil Fuels	Hydrocarbon fuels formed over millions of years by natural processes such as the anaerobic decomposition of organic matter. Typical fossil fuels include coal, oil and natural gas.

Glossary

G

Gigawatt (GW)	A unit of electric power equal to one thousand megawatts (MW) or one billion watts.
Green Chemistry	The design of chemical products or processes that reduces or eliminates the generation of hazardous substances.
Green Infrastructure	A method for naturally managing rain and flood waters. Green infrastructure reduces and treats stormwater runoff while also improving the local environment by mimicking natural processes. Green infrastructure includes strategies such as green roofs, bioswales, and permeable pavements.
Greenhouse Gas (GHG)	Gases that trap heat in the atmosphere by absorbing and emitting solar radiation within the atmosphere, causing a greenhouse effect that warms the atmosphere and leads to global climate change. The main GHGs are water vapor, carbon dioxide, methane, nitrous oxide, and ozone..
Greywater	Waste water generated in homes and offices, sourced from baths, sinks, washing machines, or kitchen appliances. Greywater may contain amounts of dirt, food, grease, or cleaning products, but does not have fecal contamination.
Global Warming Potential (GWP)	The cumulative radiative forcing, both direct and indirect effects, over a specified time horizon resulting from the emission of a unit mass of gas related to CO ₂ .

H

Habitat Connectivity	The degree to which patches of land used as habitat by local plants and animals are connected to each other. Habitat connectivity ensures that species are able to move around freely to mate, hunt, forage, or reproduce. Habitat connectivity also allows species the ability to migrate to preferable areas in the case of habitat loss or climate event avoiding habitat fragmentation.
Habitat Linkages	An area of land that poses sufficient cover, food, forage, water, or other essential elements to serve as a movement pathway for species between two or more areas of habitat.
Heat Island Effect	Measurable elevated temperatures in developed areas, as compared to more rural surroundings. Temperatures in developed areas are affected by absorption of heat by hardscapes and radiation of heat into surrounding areas, resulting in local climate changes. Heat islands are influenced by geographic location and by local weather patterns, with effects changing on a daily or seasonal basis.

High Frequency Transit Transit that has reliable, high frequency service oftentimes with service every 15 minutes or less.

High-Quality Transit Areas (HQTA) Generally, a walkable transit area, consistent with the adopted Regional Transportation Plan and is within one half-mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours.

I

Intergovernmental Panel on Climate Change (IPCC) A United Nations body that evaluates current impacts and future risks of a changing climate. The IPCC prepares comprehensive scientific reports on climate change and provides technical and policy-relevant guidelines for reducing the rate at which climate change.

Impermeable Areas Solid surfaces, such as paved roads and parking lots, which do not allow water to penetrate into the ground below.

K

1,000 British thermal units (kBtu) One thousand British thermal units. Often used to calculate the EUI per square foot of buildings.

L

Light-duty Vehicle A passenger vehicle with a maximum gross vehicle weight rating of 8,500 lbs.

M

Medium-Duty Vehicle A passenger vehicle with a maximum gross vehicle weight rating from 8,501 to 10,000 lbs.

Methane (CH₄) A gas made up of one carbon atom and four hydrogen atoms. Methane is the main component of natural gas, commonly used as a fuel for heating. Methane is released during the production and distribution of natural gas but also through livestock and other agricultural practices and by the decay of organic waste in landfills. Like carbon dioxide, methane is a greenhouse gas and exacerbates climate change. However, methane has a much higher global warming potential than carbon dioxide meaning methane has a much larger effect than the same amount of CO₂.

Glossary

Microgrid An electrical distribution network that is connected to two or more buildings in a local area that can enter into “island mode” (i.e., operates in isolation from the central or local electricity distribution network) and provide power to buildings without using the central grid.

Micromobility Transportation options that include personal vehicles meant to carry one or two passengers such as bicycles, small electric cars, or scooters.

Mode A particular form of travel such as walking, traveling by automobile, traveling by bus, or traveling by train.

N

Native Population The indigenous inhabitants who have lived or currently live in the geographic area within the current boundaries of the County before and after the arrival of Europeans.

Natural Forests Native trees and related vegetation in natural land areas where there are no clearly visible indications of human activities and where the ecological processes are not significantly disturbed.

Near-zero-emission vehicle Plug-in hybrid electric vehicles powered by both an internal combustion and battery-electric powertrain that are capable of operating like as a zero-emission vehicle for some distances. NZEVs are considered a bridge technology which will help the development of the full ZEV market.

Net Zero Carbon A system, process, building or community that mitigates any GHG emissions associated with its resource use or does not use energy sources that contribute to GHG emissions.

Net Zero Waste A system, process, building or community that sends no waste to landfills by reducing consumption and maximizing recycling and composting.

Net Zero Water A system, process, building or community that reduces water consumption and does not rely on off-site water sources to meet any of its water demand. Instead, alternative on-site sources such rainwater collection or wastewater treatment and reuse are used.

O

Ordinance A piece of legislation enacted by a municipal authority.

Organic Waste Biodegradable waste containing materials from living organisms. Organic waste may include food waste, green waste, landscaping and pruning waste, nonhazardous wood waste, or food-soiled paper waste that is mixed in with food waste. Organic waste can be processed through composting or anaerobic digestion.

P

Particulate Matter (PM)	A combination of solid and liquid droplets found in the air. Particulate matter can include dust, dirt, soot, or smoke. Some PM is large enough to be seen but other types are microscopic (fine particulate matter). Fine particulate matter can travel deeply into the human respiratory tract and can cause health effects such as throat irritation, coughing, or asthma.
Public-Private Partnership	A collaborative arrangement between public agencies and private-sector companies. These partnerships allow large-scale government projects to be completed with private funding, where the private entities are able to receive operating profits.
Plug-in Electric Vehicles (PEV)	A vehicle that can be recharged from an external source of electricity, such as a wall socket, and that stores this electricity in rechargeable battery packs that power the vehicle's motion.

R

Regenerative Agricultural Practices	A holistic land management and agriculture practice that reverses the effects of climate change through rebuilding soil organic matter and restoring degraded soil biodiversity. Practices that support regenerative agriculture include well-managed grazing, the use of compost, or minimal tillage.
Renewable Energy	Energy that comes from resources which are naturally replenished on a human timescale, such as sunlight, wind, tides, waves, bioenergy, hydrogen and geothermal.
Residual Emissions	The emissions remaining after all technically and economically feasible opportunities to reduce emissions in all covered scopes and sectors have been implemented.
Resilience	The capacity to survive, adapt and thrive in the face of chronic stresses and acute shocks and to even transform as conditions require. See also Shocks and Stresses.

Glossary

S

Shocks and Stresses	Shocks are sudden events that threaten or impact the County’s immediate well-being. These can include earthquakes, fires, landslides, public health emergencies, civil unrest, terrorism, chemical emergencies, financial crises, extreme heat, flooding, infrastructure outages or disruptions, or building failures. Stresses are longer-term, chronic challenges that weaken natural, built and economic or human resources. These can include inequity, disparities in employment, health and education, crime and violence, homelessness, economic recession, lack of affordable housing, food insecurity, climate change, air pollution and heat island effect.
Significant Ecological Areas (SEA)	Land that is identified to hold important biological resources representing the wide-ranging biodiversity of the County, based on the criteria for SEA designation established by the General Plan and as mapped in the adopted SEA Policy Map.
Single Occupancy Vehicle (SOV) Trips	Trips in privately operated vehicle that contains only one occupant.
Source Separation	The proper separation of different waste streams for waste collection and treatment. For instance, properly separating and discarding of paper recycling from organic waste.
Sunset Strategy	A strategy to manage declining industries, such as the oil and gas industry and phase them out.
Sustainability	Sustainability or sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

T

Transit-Oriented District (TOD)	A planning strategy that explicitly links land-use and transportation by focusing mixed-uses, mixed housing, employment and commercial growth around bus and rail stations (approximately one-quarter to one-half mile radius of a significant transit facility station). TODs can reduce the number and length of vehicle trips by encouraging more bicycle/pedestrian and transit use and can support transit investments by creating the density around stations to boost ridership.
Transportation Demand Management (TDM)	Strategies to change travel behavior in order to reduce traffic congestion, increase safety and mobility, conserve energy, and reduce GHG emissions. These strategies are intended to reduce the demand for roadway travel and increase the overall efficiency of a local or regional transportation system. Strategies may include ridesharing, telecommuting, park-and-ride programs, pedestrian improvements and alternative work schedules.

U

Unincorporated Areas	More than 65 percent of the County (or 2,654 square miles) is unincorporated, meaning not within a city boundary. For the population of nearly 1 Million people living in these areas, the County Board of Supervisors acts as their city council and the supervisor representing a specific area acts as the city mayor. County departments provide the municipal services for these areas. There are approximately 120 – 125 unincorporated areas in Los Angeles County.
Urban Agriculture	Agriculture practices in urban areas that take the form of backyard, rooftop, or balcony gardening, community gardening in vacant lots or parks, or roadside agriculture and livestock grazing in available open space.
Urban Forests	Trees and related vegetation in urban and near-urban areas, including, but not limited to, street trees, park trees, residential trees, and other trees on other public or private properties.

V

Vision Zero	The commitment to eliminate traffic-related deaths and severe injuries by a certain date.
Vehicle Miles Traveled (VMT)	A measurement of miles traveled by vehicles within a specified region for a specified time period.
Vulnerable Populations	The population of LA County including, but not limited to, older adults, people with disabilities, children, Native American groups, people of color, and people with chronic medical conditions that are at elevated risk of climate change impacts such as extreme heat, fire, and flooding. These communities typically lack the resources to protect themselves from climate events or recover quickly from damage or illness.

W

Waste Diversion	The process of managing a waste stream such that waste products do not end up in landfills. Waste can be diverted through strategies such as reuse, recycling, composting, or anaerobic digestion.
Waste Generation	The total amount of waste created within a jurisdiction (or by a business or residence), both that which is disposed and that which is diverted.
Watershed	An area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel.

Glossary

Weatherization The modification of a building to reduce energy consumption and optimize energy efficiency by protecting the interior of a building from environmental elements such as sunlight, precipitation, wind, and temperature.

Working Lands Farms, ranches, forests, other extractive land uses, and managed natural areas that support economic activity and land-based livelihoods. These areas supply life-sustaining resources including clean water, air, and food.

Z

Zero-Emission Vehicles (ZEV) Vehicles that produce no tailpipe emissions. Generally, ZEVs feature electric powertrains. Technically, ZEVs are still responsible for some greenhouse gas (GHG) emissions, if the GHG content from the electricity generation comes from fossil fuel sources.

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Acronyms and Abbreviations

Acronyms & Abbreviations

2020 CCAP	Los Angeles County Community Climate Action Plan 2020
AB	Assembly Bill
ACWM	Department of Agricultural Commissioner/Weights and Measures
AFOLU	Agriculture, Forestry, and Other Land Use
AR4	IPCC Fourth Assessment Report
AR5	IPCC Fifth Assessment Report
AVAQMD	Antelope Valley Air Quality Management Board
CAL FIRE	California Department of Forestry and Fire Protection
CALGEM	California Geologic Energy Management Division
CalRecycle	California Department of Resources Recycling and Recovery
CalTrans	California Department of Transportation
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy
CAP	Climate Action Plan
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CEO	Los Angeles County Chief Executive Office
CH ₄	Methane
CHP	Combined Heat and Power
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide Equivalent
CPA	Clean Power Alliance
DBH	Los Angeles County Department of Beaches and Harbors
DCBA	Los Angeles County Department of Consumer and Business Affairs
DER	Distributed Energy Resource

DPH	Los Angeles County Department of Public Health
DPR	Los Angeles County Department of Parks and Recreation
DRP	Los Angeles County Department of Regional Planning
EMFAC	SCAG Regional Travel Demand Model and Emissions Factors
EO	Executive Order
EPA	United States Environmental Protection Agency
EUI	Energy Use Intensity
EV	Electric Vehicle
EVSE	Electric Vehicle Charging Stations
FIRE	Los Angeles County Fire Department
General Plan	Los Angeles County General Plan 2035
GHG	Greenhouse Gas
GPC	Global Protocol for Community-Scale GHG Emissions
GW	Gigawatt
GWh	Gigawatt hours
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
HQTA	High Quality Transit Area
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
ISD	Los Angeles County Internal Services Department
kBtu	1,000 British thermal units
LACDA	Los Angeles County Development Authority
LACI	Los Angeles Cleantech Incubator
LACMTA	Los Angeles County Metropolitan Transportation Authority
LACSD	Sanitation Districts of Los Angeles County

Acronyms and Abbreviations

LAEDC	Los Angeles County Economic Development Corporation
LARC	Los Angeles Regional Collaborative
LASD	Los Angeles County Sheriff's Department
MW	Megawatt
NASS	Natural Agricultural Statistical Service
N ₂ O	Nitrous oxide
NF ₃	Nitrogen trifluoride
NZEV	Near-zero-emission vehicle
Paris Agreement	2016 Paris Climate Agreement
PEV	Plug-in Electric Vehicle
PFC	Perfluorocarbon
PM	Particulate Matter
PV	Photovoltaic
PW	Los Angeles County Department of Public Works
ROM	Rough Order of Magnitude
RR/CC	Registrar-Recorder/County Clerk
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCRRA or Metrolink	Southern California Regional Rail Authority
SEA	Significant Ecological Area
SF ₆	Sulfur hexafluoride

SoCalREN	Southern California Regional Energy Network
SOV	Single Occupancy Vehicle
SP	OurCounty Sustainability Plan
TDM	Transportation demand management
TOD	Transit-Oriented Districts
TPD	Tons per Day
TSSP	Traffic Signal Synchronization Program
USDA	United States Department of Agriculture
VMT	Vehicle Miles Travelled
WDACS	Los Angeles County Department of Workforce Development, Aging and Community Services
ZEV	Zero-emission Vehicle

References

References

- 1 California's Fourth Climate Assessment Los Angeles Region Report. Retrieved in November 2019. <https://www.energy.ca.gov/sites/default/files/2019-07/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles.pdf>
- 2 California Department of Forestry & Fire Protection Top 20 Most Destructive California Wildfires. Retrieved in November 2019. https://www.fire.ca.gov/media/5511/top20_destruction.pdf
- 3 SCAG Regional Transportation Model. Retrieved by Fehr and Peers in July 2019.
- 4 OurCounty Los Angeles Countywide Sustainability Plan. Retrieved in October 2019. <https://ourcountyla.org/wp-content/uploads/2019/07/OurCounty-Final-Plan.pdf>
- 5 LACI Zero emissions 2028 Roadmap 2.0. Retrieved in October 2019. <https://laincubator.org/roadmap/>
- 6 Metro Climate Action and Adaptation Plan. Retrieved in July 2019. https://media.metro.net/projects_studies/sustainability/images/Climate_Action_Plan.pdf
- 7 Roadmap to a Sustainable Waste Management Future. Retrieved in July 2019. https://pw.lacounty.gov/epd/Roadmap/PDF/Roadmap_Appendices.pdf https://dpw.lacounty.gov/epd/Roadmap/PDF/Roadmap_Appendices.pdf
- 8 Carbon Neutral Cities Alliance. Framework for Long-Term Deep Carbon Reduction Planning. Retrieved in April 2019. <https://carbonneutralcities.org/wp-content/uploads/2018/04/CNCA-Framework-for-Long-Term-Deep-Carbon-Reduction-Planning.pdf>
- 9 CARB OFFROAD2017 ORION. Retrieved in April 2019 from, <https://www.arb.ca.gov/orion/>
- 10 SCAG Local Profiles. Retrieved in June 2019 from, <https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx>
- 11 FTA NTD Database. Retrieved in April 2019 from, <https://www.transit.dot.gov/ntd/ntd-data>
- 12 CARB GHG Inventory Documentation. Retrieved in April 2019 from, <https://ww2.arb.ca.gov/ghg-inventory-data>
- 13 SCAG 2012 Adopted Growth Forecast. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 14 CalTrans. California Public Road Data. Retrieved in July 2019 from, <https://ecdms.energy.ca.gov/Default.aspx>
- 15 California Energy Consumption Database. Retrieved in June 2019 from, <https://ecdms.energy.ca.gov/Default.aspx>
- 16 California Energy Consumption Database. Retrieved in June 2019 from, <https://ecdms.energy.ca.gov/Default.aspx>
- 17 California Energy Consumption Database. Retrieved in June 2019 from, <https://ecdms.energy.ca.gov/Default.aspx>

- 18 SCAG Local Profiles. Retrieved in June 2019 from, <https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx>
- 19 PW SWIMS. Retrieved in July 2019 from, <https://pw.lacounty.gov/epd/swims/OnlineServices/reports.aspx>
- 20 SCAG 2012 Adopted Growth Forecast. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 21 PW SWIMS. Retrieved in July 2019 from, <https://pw.lacounty.gov/epd/swims/OnlineServices/reports.aspx>
- 22 SCAG 2012 Adopted Growth Forecast. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 23 SCAG 2012 Adopted Growth Forecast. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 24 USDA NASS CropScape. Retrieved in April 2019 from, <https://nassgeodata.gmu.edu/CropScape/>
- 25 SCAG Regional Transportation Model. Retrieved by Fehr and Peers in July 2019.
- 26 Metro Ridership Stats. Retrieved in April 2019 from, <http://isotp.metro.net/MetroRidership/Index.aspx>
- 27 FTA NTD Database. Retrieved in April 2019 from, <https://www.transit.dot.gov/ntd/ntd-data>
- 28 MetroLink Strategic Plan 2015-2025. Retrieved in April 2019 from, https://www.metrolinktrains.com/globalassets/about/metrolink_10-year_strategic_plan_2015-2025.pdf
- 29 FTA NTD Database. Retrieved in April 2019 from, <https://www.transit.dot.gov/ntd/ntd-data>
- 30 Metro Ridership Stats. Retrieved in April 2019 from, <http://isotp.metro.net/MetroRidership/Index.aspx>
- 31 FTA NTD Database. Retrieved in April 2019 from, <https://www.transit.dot.gov/ntd/ntd-data>
- 32 Los Angeles County Assessor Parcels Data (2018). Retrieved in April 2019 from, <https://data.lacounty.gov/Parcel-/Assessor-Parcels-Data-2006-thru-2018/9trm-uz8i/data>
- 33 Los Angeles County Assessor Parcels Data (2018). Retrieved in April 2019 from, <https://data.lacounty.gov/Parcel-/Assessor-Parcels-Data-2006-thru-2018/9trm-uz8i/data>
- 34 Los Angeles County Assessor Parcels Data (2018). Retrieved in April 2019 from, <https://data.lacounty.gov/Parcel-/Assessor-Parcels-Data-2006-thru-2018/9trm-uz8i/data>
- 35 CARB OFFROAD2017 ORION. Retrieved in April 2019 from, <https://www.arb.ca.gov/orion/>
- 36 SCAG Local Profiles. Retrieved in June 2019 from, <https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx>
- 37 CARB Pollution Mapping Tool. Retrieved in June 2019 from, https://www.arb.ca.gov/ei/tools/pollution_map/
- 38 CARB OFFROAD2017 ORION. Retrieved in April 2019 from, <https://www.arb.ca.gov/orion/>

References

- 39 USDA NASS CropScape. Retrieved in April 2019 from, <https://nassgeodata.gmu.edu/CropScape/>
- 40 CARB Pollution Mapping Tool. Retrieved in June 2019 from, https://www.arb.ca.gov/ei/tools/pollution_map/
- 41 PW 2016 Countywide Integrated Waste Management Plan Annual Report. Retrieved in April 2019 from, <https://pw.lacounty.gov/epd/swims/OnlineServices/reports.aspx>
- 42 SCAG Population projections. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 43 CalTrans Population Projections. Retrieved in April 2019 from, <https://www.shastaedc.org/wp-content/uploads/2018/07/CalTrans-2017-2050.pdf>
- 44 PW 2018 County of Los Angeles Countywide Organics Waste Management Plan. Retrieved in April 2019 from, <https://pw.lacounty.gov/epd/swims/>
- 45 PW 2016 Countywide Integrated Waste Management Plan Annual Report. Retrieved in April 2019 from, <https://pw.lacounty.gov/epd/swims/OnlineServices/reports.aspx>
- 46 PW 2018 County of Los Angeles Countywide Organics Waste Management Plan. Retrieved in April 2019 from, <https://pw.lacounty.gov/epd/swims/>
- 47 SCAG Population projections. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 48 CalTrans Population Projections. Retrieved in April 2019 from, <https://www.shastaedc.org/wp-content/uploads/2018/07/CalTrans-2017-2050.pdf>
- 49 SCAG Population projections. Retrieved in April 2019 from, <http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>
- 50 CalTrans Population Projections. Retrieved in April 2019 from, <https://www.shastaedc.org/wp-content/uploads/2018/07/CalTrans-2017-2050.pdf>
- 51 USDA NASS Cropscape. Retrieved in April 2019 from, <https://nassgeodata.gmu.edu/CropScape/>
- 52 OurCounty Los Angeles Countywide Sustainability Plan. Retrieved in October 2019. <https://ourcountyla.org/wp-content/uploads/2019/07/OurCounty-Final-Plan.pdf>
- 53 LACI Zero emissions 2028 Roadmap 2.0. Retrieved in October 2019. <https://laincubator.org/roadmap/>
- 54 Metro Climate Action and Adaptation Plan. Retrieved in July 2019. https://media.metro.net/projects_studies/sustainability/images/Climate_Action_Plan.pdf
- 55 Roadmap to a Sustainable Waste Management Future. Retrieved in July 2019. https://pw.lacounty.gov/epd/Roadmap/PDF/Roadmap_Appendices.pdf
- 56 OurCounty Los Angeles Countywide Sustainability Plan. Retrieved in October 2019. <https://ourcountyla.org/wp-content/uploads/2019/07/OurCounty-Final-Plan.pdf>

- 57 SCAG Local Profiles. Retrieved in June 2019 from, <https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx>
- 58 LACI Zero emissions 2028 Roadmap 2.0. Retrieved in October 2019. <https://laincubator.org/roadmap/>
- 59 LACI Zero emissions 2028 Roadmap 2.0. Retrieved in October 2019. <https://laincubator.org/roadmap/>
- 60 LACI Zero emissions 2028 Roadmap 2.0. Retrieved in October 2019. <https://laincubator.org/roadmap/>
- 61 OurCounty Los Angeles Countywide Sustainability Plan. Retrieved in October 2019. <https://ourcountyla.org/wp-content/uploads/2019/07/OurCounty-Final-Plan.pdf>
- 62 HFC Prohibitions in California. Retrieved in October 2019. <https://ww2.arb.ca.gov/resources/fact-sheets/hydrofluorocarbon-hfc-prohibitions-california>
- 63 CalEnviroScreen 3.0. Retrieved in October 2019. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>
- 64 CalEnviroScreen 3.0. Retrieved in October 2019. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>
- 65 CalEnviroScreen 3.0. Retrieved in October 2019. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>
- 66 CalEnviroScreen 3.0. Retrieved in October 2019. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

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